

**Project No. 1251-100**  
**Crude Oil Tank Farms Project, Agrood Area 30 (Module-1)**



|                           |                                      |
|---------------------------|--------------------------------------|
| <b>System ID</b>          | <b>030-LP-007</b>                    |
| <b>System Description</b> | <b>Tank-3 Fire Protection System</b> |

| Sr. | Pre-Commissioning and Commissioning Dossier Index        | Applicable (Yes/No) |
|-----|----------------------------------------------------------|---------------------|
| 1   | Mechanical Completion Certificate (MCC)                  |                     |
| 2   | Ready for Startup Certificate (RFSU)                     |                     |
| 3   | System Punch Lists                                       |                     |
| 4   | System Limits Marked Up P&ID                             |                     |
| 5   | System Index                                             |                     |
| 6   | Piping Pre-Commissioning                                 |                     |
|     | 6.01) Piping Test Packs                                  |                     |
|     | 6.02) Piping Pre-commissioning Check Lists               |                     |
| 7   | Piping Commissioning                                     |                     |
|     | 7.01) Service Test, GLT, CLT and N2 Purging Certificates |                     |
|     | 7.02) Piping Commissioning Check Lists                   |                     |
| Sr. | Pre-Commissioning and Commissioning Dossier Index        | Applicable (Yes/No) |
| 8   | Mechanical Pre-Commissioning                             |                     |
|     | 8.01) System Mechanical Index                            |                     |
|     | 8.02) Equipment Drawings                                 |                     |
|     | 8.03) Equipment Datasheets                               |                     |
|     | 8.04) Boxing-up Certificates                             |                     |

|  |                                               |  |
|--|-----------------------------------------------|--|
|  | 8.05) Grouting Certificates                   |  |
|  | 8.06) Pre-Alignment Certificates              |  |
|  | 8.07) Mechanical Pre-Commissioning Checklists |  |

**9 Mechanical Commissioning**

|  |                                                 |  |
|--|-------------------------------------------------|--|
|  | 9.01) Final Alignment Certificates              |  |
|  | 9.02) Motor Solo Run Certificates               |  |
|  | 9.03) Mechanical Run Test (MRT) Certificates    |  |
|  | 9.04) Mechanical Commissioning Checklists       |  |
|  | 9.05) Mechanical Supplier Check Lists & Reports |  |

**10 Instrumentation Pre-Commissioning**

|  |                                                       |  |
|--|-------------------------------------------------------|--|
|  | 10.01) System Instrument Index                        |  |
|  | 10.02) Instrument Data Sheets                         |  |
|  | 10.03) Instrument Cable Schedule                      |  |
|  | 10.04) System Instrumentation Wiring Diagram          |  |
|  | 10.05) Hook-up Drawing (Mechanical & Pneumatic)       |  |
|  | 10.06) Instruments Cables Schedule                    |  |
|  | 10.07) Instruments Cables Laying Certificates         |  |
|  | 10.08) Instruments Cables Termination Certificates    |  |
|  | 10.09) Instruments Cables Testing Certificates        |  |
|  | 10.10) Instruments Calibration Certificates           |  |
|  | 10.11) Instrument Loop Checks Certificates            |  |
|  | 10.12) Instrumentation Pre-Commissioning Check Lists  |  |
|  | 10.13) Instrumentation Supplier Check Lists & Reports |  |

**11 Instrumentation Commissioning**

|  |                                                       |  |
|--|-------------------------------------------------------|--|
|  | 11.01) Instrumentation Function Test Certificates     |  |
|  | 11.02) Instrumentation Supplier Check Lists & Reports |  |

| Sr. | Pre-Commissioning and Commissioning Dossier Index | Applicable<br>(Yes/No) |
|-----|---------------------------------------------------|------------------------|
|-----|---------------------------------------------------|------------------------|

**12 Electrical Pre-Commissioning**

|  |                                                   |  |
|--|---------------------------------------------------|--|
|  | 12.01) System Electrical Index                    |  |
|  | 12.02) Electrical Drawings                        |  |
|  | 12.03) Motor Datasheets                           |  |
|  | 12.04) Electrical Cables Schedule                 |  |
|  | 12.05) Electrical Cables Laying Certificates      |  |
|  | 12.06) Electrical Cables Testing Certificates     |  |
|  | 12.07) Electrical Cables Termination Certificates |  |
|  | 12.08) FAT Reports & Certificates                 |  |
|  | 12.09) SAT Reports & Certificates                 |  |
|  | 12.10) Electrical Pre-Commissioning Check Lists   |  |
|  | 12.11) Electrical Supplier Check Lists & Reports  |  |



|           |                                                  |  |
|-----------|--------------------------------------------------|--|
| <b>13</b> | <b>Electrical Commissioning</b>                  |  |
|           | 13.01) Electrical -Commissioning Check Lists     |  |
|           | 13.02) Electrical Supplier Check Lists & Reports |  |
|           |                                                  |  |
| <b>14</b> | <b>Red Marked-up Drawings</b>                    |  |
|           | 14.01) P&ID                                      |  |
|           | 14.02) Instrumentation Drawings                  |  |
|           | 14.03) Electrical Drawings                       |  |

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Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

### 1-Mechanical Completion Certificate (MCC)

## SYSTEM MECHANICAL COMPLETION CERTIFICATE (MCC)

**PROJECT TITLE** : CRUDE OIL TANK FARM PROJECT (AGROOD AREA)

**PROJECT No** : 01251-100


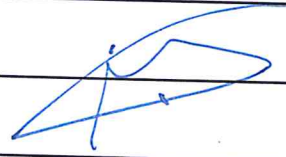
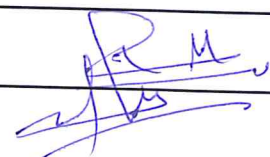
**SYSTEM NAME** : Tank-3 Fire Protection System

**SYSTEM ID** : 030-LP-007

**THIS IS TO CERTIFY THAT:**

- THE ABOVE SYSTEM HAS BEEN FABRICATED, ERECTED, INSTALLED AND TESTED TO THE REQUIREMENTS OF THE CONTRACT DRAWINGS, SPECIFICATIONS, THE APPLICABLE CODES AND STANDARDS.
- ALL PRE-COMMISSIONING RELEVANT ACTIVITIES, TESTS, INSPECTIONS AND CHECKS HAVE BEEN CARRIED OUT FOR THIS SYSTEM AND FOUND ACCEPTABLE.
- Q/C DOCUMENTATION OF THE ABOVE SYSTEM HAS BEEN AUDITED BY THE CUSTOMER SITE QUALITY CONTROL AND FOUND COMPLETED.
- ALL PUNCH LIST ITEMS CATEGORY (A) IN THIS SUBSYSTEM WERE CLEARED.
- THIS SYTEM IS MECHANICALLY COMPLETED ON THE DATE 10-06-2021 AND READY FOR COMMISSIONING (RFC) WITH THE FOLLOWING EXCEPTIONS.

**EXCEPTIONS :**

| COMPANY   | PETROJET                                                                            | ENPPI                                                                                | PMC                                                                                   |
|-----------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| NAME      |                                                                                     | M. Abbarr                                                                            |                                                                                       |
| TITLE     |                                                                                     |                                                                                      |                                                                                       |
| SIGNATURE |  |  |  |
| DATE      |                                                                                     |                                                                                      |                                                                                       |





Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 2- Ready for Startup Certificate (RFSU)



## READY FOR START UP CERTIFICATE

PROJECT TITLE : EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD-02)

PROJECT No. : 1251-100

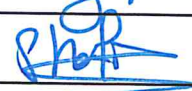
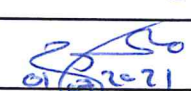
SYSTEM /AREA /PLANT : Tank-3 Fire Protection System

SYSTEM /AREA /PLANT No. : 030-LP-007

### THIS IS TO CERTIFY THAT:

- THE MENTIONED SYSTEM /AREA /PLANT IS READY FOR START UP WHERE ALL MECHANICAL WORKS, PRECOMMISSIONING AND COMMISSIONING ACTIVITIES HAVE BEEN SUCCESSFULLY COMPLETED.
- MECHANICAL COMPLETION CERTIFICATE(S) FOR THE MENTIONED SYSTEM / AREA / PLANT HAVE BEEN SIGNED.
- ISSUANCE OF THIS READY FOR START UP CERTIFICATE(S) SHALL NOT RELIEVE CONTRACTOR(S) FROM THEIR OBLIGATIONS TO COMPLETE THE REMAINING SYSTEMS NOR FROM THEIR WARRANTY OBLIGATIONS AND OTHER PROVISIONS OF THE CONTRACT.
- THE FOLLOWING EXCEPTIONS AGREED TO BE CLEARED AFTER START UP AND WILL NOT PREVENT START UP ACTIVITIES.

### EXCEPTIONS:

| COMPANY   | CONSORTIUM                                                                          | PPC                                                                                   |
|-----------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| NAME      | Ahmed El Shafie                                                                     | M. Saleh                                                                              |
| TITLE     | Commissioning Manager                                                               | Site Manager                                                                          |
| SIGNATURE |  |  |
| DATE      | 30-6-2021                                                                           | 01/07/2021                                                                            |



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

### 3- System Punch Lists

**PROJECT TITLE : CRUDE OIL TANK FARM PROJECT (AGROOD AREA)**

**PROJECT NUMBER : 01251-100**

**DISCIPLINE: Loss Prevention**

**SYSTEM NAME:** Tank-3 Fire Protection System

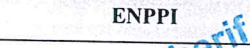

**SYSTEM ID: 030-LP-007**

**SUB-SYSTEM NAME:**

**SUB-SYSTEM ID:**

[illegible]

CAT: CATEGORY(A,B,C) ,ACTION BY: (ENPPI,CONST.CONTRACTOR,SUPPLIER.....) , DISP: DESCIPLINE(PIP,MECH,ELECT,INST.....)

| COMPANY | PTJ                                                                                 | ENPPI                                                                               | PMC |
|---------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----|
| NAME    | Sobhy Seleem                                                                        |  |     |
| SIGN.   |  |                                                                                     |     |
| DATE    | 30-5-2021                                                                           |                                                                                     |     |





Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

#### 4- System Limits Marked Up P&ID

|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 5- System Index



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 6- Piping Pre-Commissioning





Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 6.01- Piping Test Packs



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 6.02- Piping Pre-commissioning Check Lists

|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 7- Piping Commissioning



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 7.01- Service Test, GLT, CLT and N2 Purging Certificates

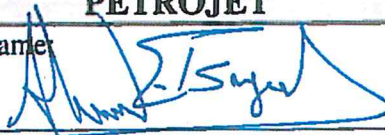
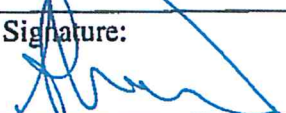




## Service Test Certificate of Completion and Acceptance

|                     |                                               |
|---------------------|-----------------------------------------------|
| Client              | Egyptian General Petroleum Corporation (EGPC) |
| Project No.         | 1251-100                                      |
| Project Description | Crude Oil Tank Farm Project                   |
| Location            | Agrood Area 30 (Module-01)                    |
| System              | 030-LP-007 (Tank-03 Fire Protection System)   |
| Loop No.            | 030-LP-007 (Tank-03 Fire Protection System)   |
| Test Medium         | Firefighting Water                            |
| Test Pressure       | Put in service                                |
| Completion Date     | 22-6-2021                                     |
| Attachments         | Leak Test Loop Marked-up P&ID                 |

### Remarks

- This is to certify that the system described in this certificate of completion has been Leak Tested using water after final reinstatement and mechanical completion for the system in accordance with the requirements of the scope of work.
- The test has been witnessed by client representatives and accepted as complete in all aspects on the data marked on the certificate of completion and acceptance.
- The test has been completed to the client satisfaction.

| Performed by<br>PETROJET                                                                          | Supervised by<br>ENPPI                                                                            | Approved by<br>PPC                                                                                  |
|---------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| Name:<br>      | Name:<br>Ahmed El Shafie                                                                          | Name:<br>M. Saleh                                                                                   |
| Title:<br>Hydrotest Engineer                                                                      | Title:<br>Commissioning Manager                                                                   | Title:<br>Site Manager                                                                              |
| Signature:<br> | Signature:<br> | Signature:<br> |
| Date:<br>22/6/2021                                                                                | Date:<br>22-6-2021                                                                                | Date:<br>01/07/2021                                                                                 |


## محضر اجتماع

### بخصوص تجربة شبكات التبريد والإطفاء لمستودع رقم (٣) بموقع الشركة العامة بعجروود

إنه في يوم الأربعاء الموافق ٢٠٢١/٠٦/٣٠م، تم إجراء تجارب اختبار شبكات التبريد والإطفاء لمستودع رقم (٣) بموقع الشركة العامة بعجروود، بحضور ممثلي قطاع السلامة بشركة أنابيب البترول.

- وقد تبين أن المنظومة تعمل بكفاءة وبإنجاح.


شركة أنابيب البترول

  
المستودع رقم (٣)

أحمد محمد التافعي

وليد عبد الوهاب

شركة أنبي

  
30-6-2021




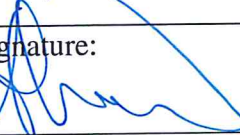
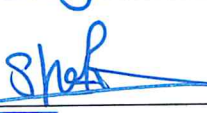
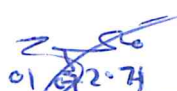


## Service Test Certificate of Completion and Acceptance

|                     |                                               |
|---------------------|-----------------------------------------------|
| Client              | Egyptian General Petroleum Corporation (EGPC) |
| Project No.         | 1251-100                                      |
| Project Description | Crude Oil Tank Farm Project                   |
| Location            | Agrood Area 30 (Module-01)                    |
| System              | 030-LP-007 (Tank-03 Fire Protection System)   |
| Loop No.            | 030-LP-007 (Tank-03 Fire Protection System)   |
| Test Medium         | Firefighting Water                            |
| Test Pressure       | Put in service                                |
| Completion Date     | 22-6-2021                                     |
| Attachments         | Leak Test Loop Marked-up P&ID                 |

### Remarks

- This is to certify that the system described in this certificate of completion has been **Leak Tested using water** after final reinstatement and mechanical completion for the system in accordance with the requirements of the scope of work.
- The test has been witnessed by client representatives and accepted as complete in all aspects on the data marked on the certificate of completion and acceptance.
- The test has been completed to the client satisfaction.

| Performed by<br>PETROJET                                                                          | Supervised by<br>ENPPI                                                                            | Approved by<br>PPC                                                                                  |
|---------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| Name:<br>      | Name:<br>Ahmed El Shafie                                                                          | Name:<br>M. Saleh                                                                                   |
| Title:<br>Hydro Test Engineer                                                                     | Title:<br>Commissioning Manager                                                                   | Title:<br>Site Manager                                                                              |
| Signature:<br> | Signature:<br> | Signature:<br> |
| Date:<br>22/06/2021                                                                               | Date:<br>22-6-2021                                                                                | Date:<br>01/07/2021                                                                                 |

|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 7.02- Piping Commissioning Check Lists



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 8.01- System Mechanical Index





Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 8.02- Equipment Drawings



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

### 8.03- Equipment Datasheets



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 8.04- Boxing-up Certificates



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 8.05- Grouting Certificates





Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 8.06- Pre-Alignment Certificates



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 8.07- Mechanical Pre-Commissioning Checklists



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 9- Mechanical Commissioning



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 9.01- Final Alignment Certificates





Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 9.02- Motor Solo Run Certificates



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

### 9.03- Mechanical Run Test (MRT) Certificates



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 9.04- Mechanical Commissioning Checklists

|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 9.05- Mechanical Supplier Check Lists & Reports



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 10- Instrumentation Pre-Commissioning





Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 10.01- System Instrument Index



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 10.02- Instrument Data Sheets



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

### 10.03- Instrument Cable Schedule



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 10.04- System Instrumentation Wiring Diagram



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 10.05- Hook-up Drawing (Mechanical & Pneumatic)





Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 10.06- Instruments Cables Schedule



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 10.07- Instruments Cables Laying Certificates

|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 10.08- Instruments Cables Termination Certificates



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 10.09- Instruments Cables Testing Certificates



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 10.10- Instruments Calibration Certificates



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 10.11- Instrument Loop Checks Certificates



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 10.12- Instrumentation Pre-Commissioning Check Lists

|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

### 10.13- Instrumentation Supplier Check Lists & Reports



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 11- Instrumentation Commissioning



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

|  |
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|  |
|--|

|                                                                                                                                          |                                                                                  |                                             |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|---------------------------------------------|
| <b>MINUTES<br/>OF<br/>MEETING</b>                                                                                                        | <b>PROJECT TITLE :</b> EGPC Crude Oil Tank Farms Project (AGROOD 30) (Module 01) |                                             |
|                                                                                                                                          | <b>PROJECT No :</b> 1251-100                                                     | <b>DATE :</b> 5-9-2021                      |
|                                                                                                                                          | <b>CUSTOMER :</b> EGPC (PPC)                                                     |                                             |
|                                                                                                                                          |                                                                                  |                                             |
| <b>LOCATION :</b> Agrood, Suez, EGYPT                                                                                                    |                                                                                  | <b>MEETING DATE :</b> 5-9-2021              |
| <b>WRITTEN BY :</b> Ahmed El Shafie                                                                                                      |                                                                                  | <b>DEPARTMENT :</b> Commissioning & Startup |
| <b>MEETING No :</b> [MEETING No]                                                                                                         |                                                                                  | <b>FILE No :</b>                            |
| <b>PURPOSE OF MEETING:</b>                                                                                                               |                                                                                  |                                             |
| <p style="text-align: center;"><b>Fire &amp; Gas Cause &amp; Effect Verification Finalization for<br/>Agrood Area 30 (Module-01)</b></p> |                                                                                  |                                             |
| <b>ATTENDEES:</b>                                                                                                                        |                                                                                  |                                             |
| <b>ENPPI</b>                                                                                                                             | <b>PETROJET</b>                                                                  | <b>PPC</b>                                  |
| Ah Ashraf                                                                                                                                | Sathyaseelan                                                                     | M. Omar                                     |
| <b>DISTRIBUTION:</b>                                                                                                                     |                                                                                  |                                             |
|                                                                                                                                          |                                                                                  |                                             |

## MINUTES OF MEETING (Cont'd)

PROJECT No : 1251-100

MEETING No : [MEETING No]

MEETING DATE : 5-9-2021

| ITEM No | DESCRIPTION OF DISCUSSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ACTION BY | DATE |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|------|
|         | <ul style="list-style-type: none"> <li>This close-out meeting was held between ENPPI, PETROJET and PPC to certify the completion of Fire and gas cause-and-effect verification for Agrood area 30 entirely.</li> <li>Fire and gas cause-and-effect verification have been tested, witnessed, and approved by PPC.</li> <li>Signing off this MOM does not relieve any contractor from their contractual obligations.</li> </ul> <p><b>Exceptions:</b></p> <p>* GD-013 shall be fixed<br/>(cleared)<br/>Sobly</p> <p>* 2 smoke detectors in battery rooms.</p> <p>* 4 Gas detectors ZAM modules.</p> |           |      |
|         | <p>Enppi      petrojet      PPC</p> <p>Ali Ashraf      Soblydeen      M. Omar</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |           |      |





Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 11.02- Instrumentation Supplier Check Lists & Reports



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 12- Electrical Pre-Commissioning

|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 12.01- System Electrical Index

|            |                               |                 | Form Type                        | Check Form ID |
|------------|-------------------------------|-----------------|----------------------------------|---------------|
| U30-LP-007 | Tank-3 Fire Protection System | Loss Prevention | Combustible Gas Detector         | LP-13 A       |
| 030-LP-007 | Tank-3 Fire Protection System | Loss Prevention | Electrical Linear Heat Detector  | LP-13 A       |
| 030-LP-007 | Tank-3 Fire Protection System | Loss Prevention | Electrical Linear Heat Detector  | LP-13 A       |
| 030-LP-007 | Tank-3 Fire Protection System | Loss Prevention | Flame Detector (Triple Infrared) | LP-13 A       |
| 030-LP-007 | Tank-3 Fire Protection System | Loss Prevention | Pressure Switch High             | LP-10 A       |
| 030-LP-007 | Tank-3 Fire Protection System | Loss Prevention | Pressure Switch High             | LP-10 A       |
| 030-LP-007 | Tank-3 Fire Protection System | Loss Prevention | Pressure Switch High             | LP-10 A       |
| 030-LP-007 | Tank-3 Fire Protection System | Loss Prevention | Pressure Switch High             | LP-10 A       |
| 030-LP-007 | Tank-3 Fire Protection System | Loss Prevention | Pressure Switch High             | LP-10 A       |

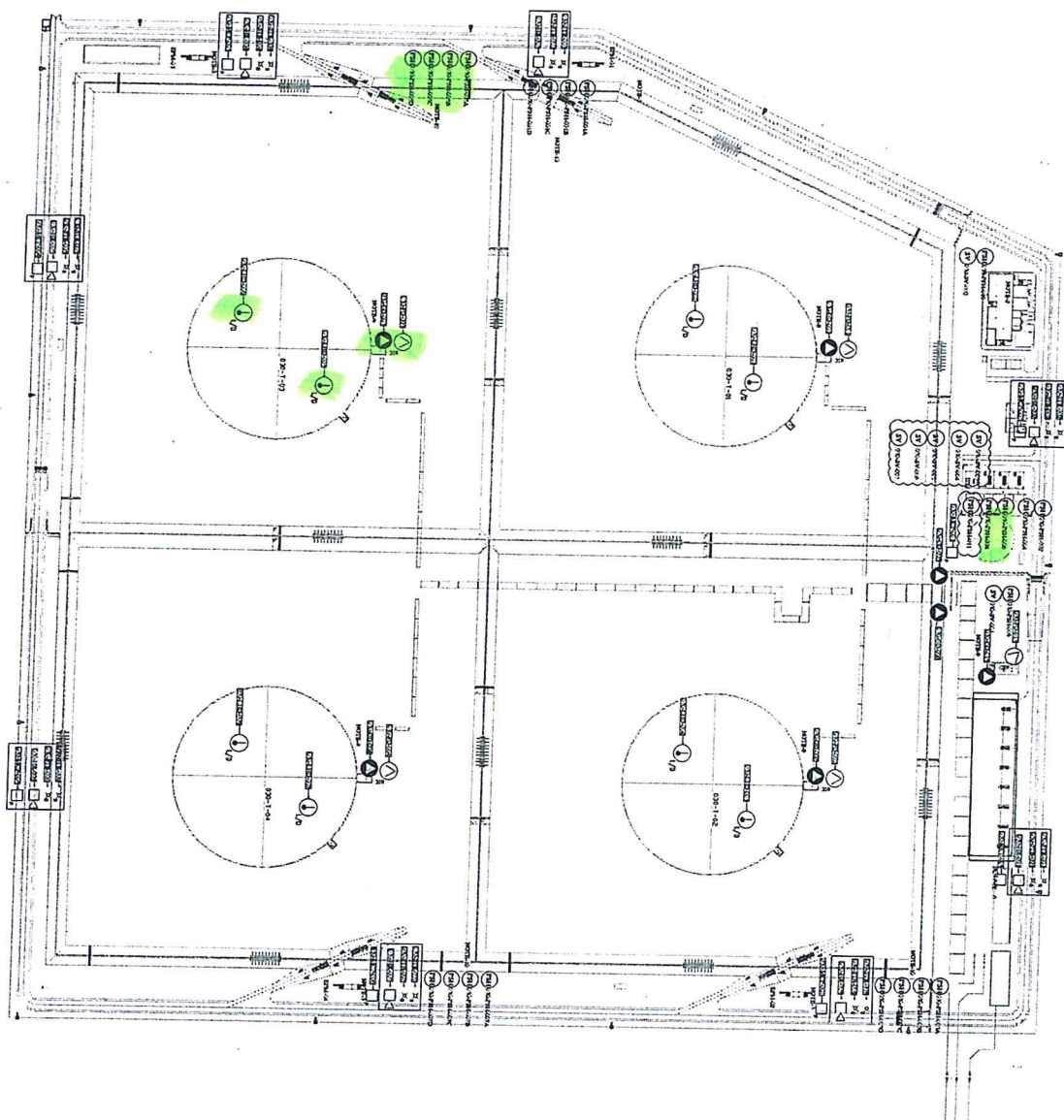
































Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

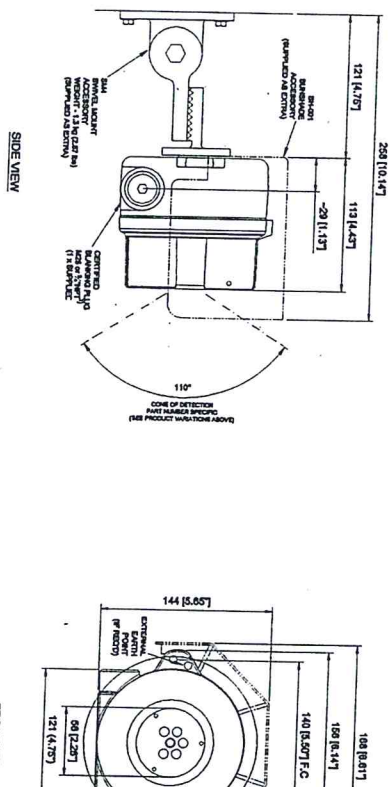
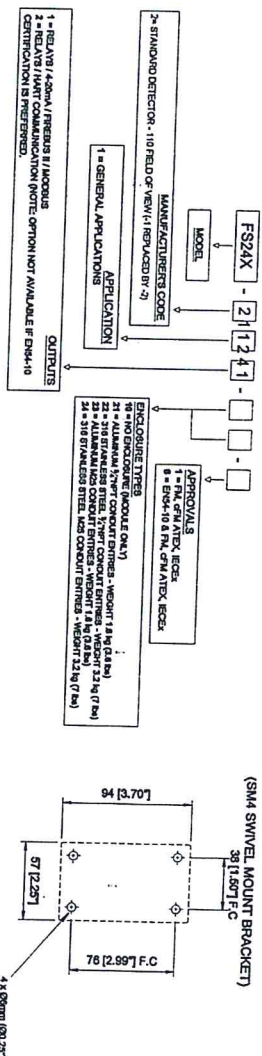
## 12.02- Electrical Drawings



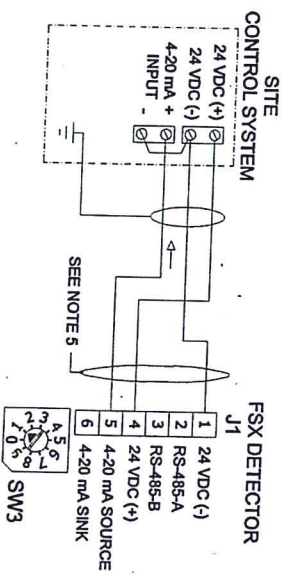
| SYMBOL                                                                                | DESCRIPTION |
|---------------------------------------------------------------------------------------|-------------|
|  | 1. UP       |
|  | 2. DOWN     |
|  | 3. NO       |
|  | 4. YES      |
|  | 5. NO       |
|  | 6. YES      |
|  | 7. NO       |
|  | 8. YES      |
|  | 9. NO       |
|  | 10. YES     |
|  | 11. NO      |
|  | 12. YES     |
|  | 13. NO      |
|  | 14. YES     |
|  | 15. NO      |
|  | 16. YES     |
|  | 17. NO      |
|  | 18. YES     |
|  | 19. NO      |
|  | 20. YES     |
|  | 21. NO      |
|  | 22. YES     |
|  | 23. NO      |
|  | 24. YES     |
|  | 25. NO      |
|  | 26. YES     |
|  | 27. NO      |
|  | 28. YES     |
|  | 29. NO      |
|  | 30. YES     |





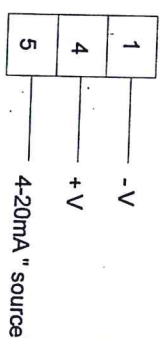


### WIRING AND TERMINAL CONNECTION DETAIL

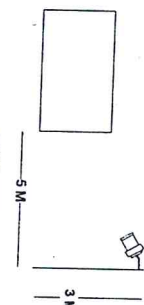


SW3 SET TO "1" FOR CURRENT SOURCE (SEE NOTE 4) TYPICAL WIRING FOR 4-20mA (CURRENT SOURCE) ANALOG OUTPUT

### 2-Flame Detector (FS24x)



ELEVATION



**ABB TURBOCHARGERS SALE**

**Enppi**

ENGINEERING FOR THE PETROLEUM AND P&E

ENPPI PROJECT NUMBER 41

**SBS 220-TX**

3553 West Adams St. Suite 200 E

Chicago, IL 60609

Tel: +1 (773) 832-698-9454

Email: sales@sbspro.com

**SBS**

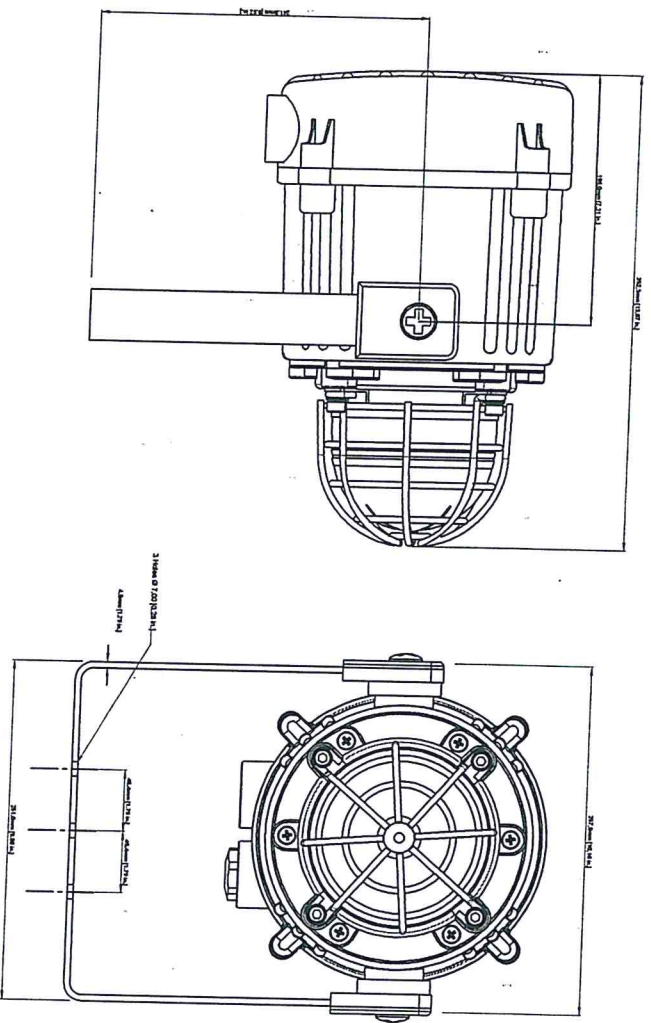
**Project Name: EGPC CRUDE**

**INSTRUMENT TERMINATIC**

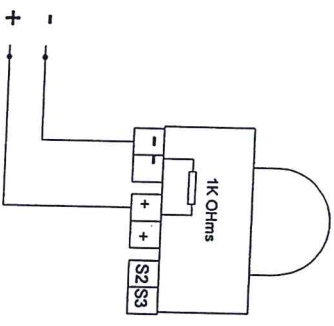
**HOOK UP DETAILS**

**DRAWING NUMBER**

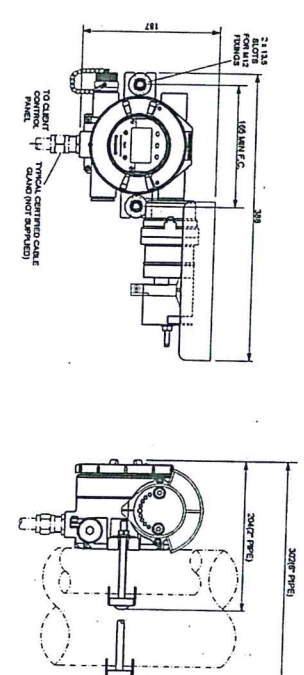
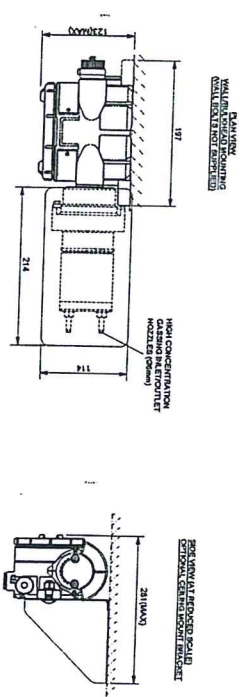
**SBS-JOB503-DC18-118-011**



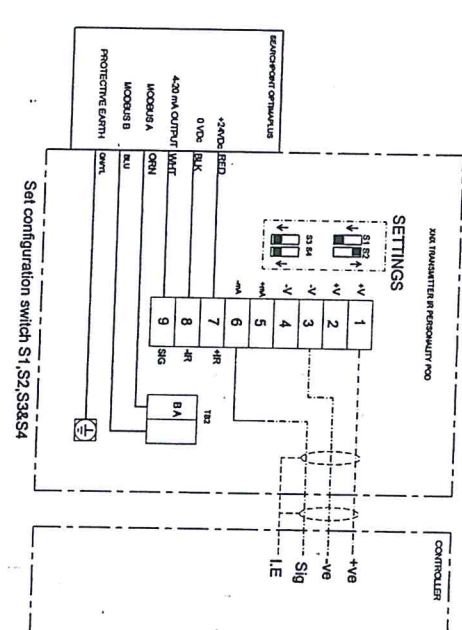
# Electrical DC wiring



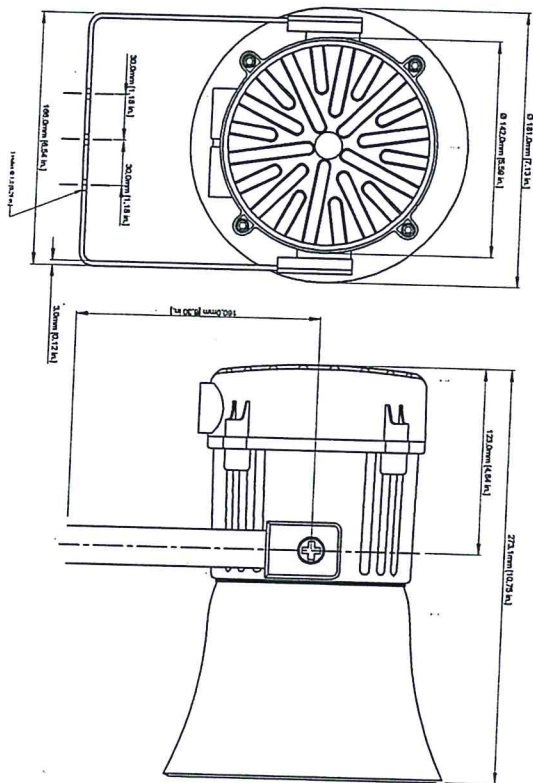
|                                                                                                                                       |                                           |
|---------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| <b>ABB TURBOCHARGERS S.A.E.</b><br>شركة التوربوشارجERS S.A.E.<br>ENGINEERING FOR THE AUTOMOTIVE AND P.E.<br>ENPPI PROJECT NUMBER 41   |                                           |
| <b>SBS</b><br>شركة سبS<br>5333 West Alaboma St. Suite 200 E.<br>Tulsa, OK 74105<br>Tel: +1 (918) 432-6989<br>Email: sales@sbscorp.com |                                           |
| Project Name: EGPC CRUDE OIL                                                                                                          |                                           |
| DRAWING TITLE<br>INSTRUMENT TERMINATIC<br>HOOK UP DETAILS                                                                             |                                           |
| SCALE<br>NONE                                                                                                                         | DRAWING NUMBER<br>SBS-JOB503-DC18-118-011 |



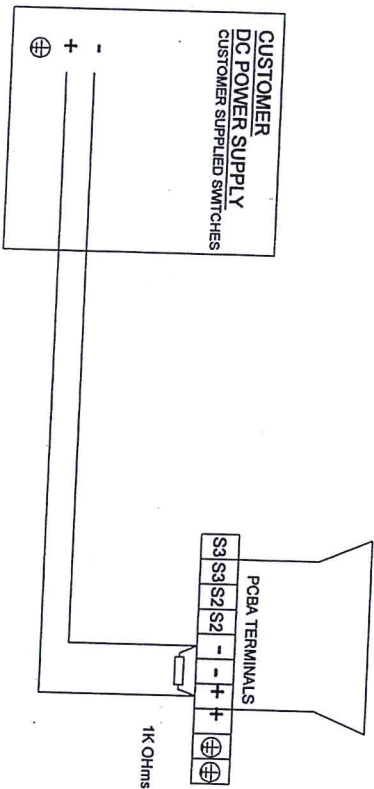
# ELECTRICAL WIRING



|                                                                                                                                     |  |
|-------------------------------------------------------------------------------------------------------------------------------------|--|
| ABB TURBOCHARGERS S.                                                                                                                |  |
|                                                                                                                                     |  |
| 555 West Alabama St. Suite 200<br>Dallas, TX 75202<br>Tel: +1(817) 832-898-9424 Fax: +1(817) 832-898-9424<br>Email: sales@enppi.com |  |
| Project Name: EGPC CRUDE OIL                                                                                                        |  |
| Drawing Title: INSTRUMENT TERMINATI                                                                                                 |  |
| Drawing Number: HOOK UP DETAIL                                                                                                      |  |
| Scale: NONE                                                                                                                         |  |
| SBS-JOB503-DC18-118-011                                                                                                             |  |



## ELECTRICAL DC WIRING



| REV | DATE     | DESCRIPTION         |
|-----|----------|---------------------|
| 1   | 10/10/20 | ISSUED FOR APPROVAL |
| 2   | 10/10/20 | ISSUED FOR APPROVAL |
| 3   | 10/10/20 | ISSUED FOR APPROVAL |
| 4   | 10/10/20 | ISSUED FOR APPROVAL |
| 5   | 10/10/20 | ISSUED FOR APPROVAL |
| 6   | 10/10/20 | ISSUED FOR APPROVAL |
| 7   | 10/10/20 | ISSUED FOR APPROVAL |
| 8   | 10/10/20 | ISSUED FOR APPROVAL |
| 9   | 10/10/20 | ISSUED FOR APPROVAL |
| 10  | 10/10/20 | ISSUED FOR APPROVAL |

ABB TURBOCHARGER S.A.

مركبات الغازات المضغوطة

**Emppi**

ENGINEERING PROJECTS AND DESIGN

ENRPI PROJECT NUMBER

**SBS 220-17**

5353 West Auburn St Suite 200

Zip Code 770

Tel: +1 (832) 698-9424 Fax:

Email: sales@sbapro

SCALE

NONE

Project Name: EGPC CRUD

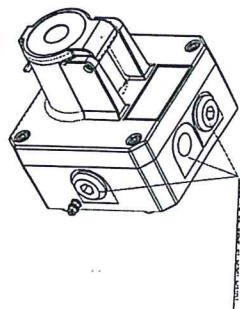
INSTRUMENT TERMINATI

HOOK UP DETAIL

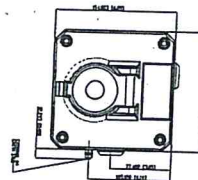
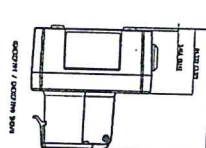
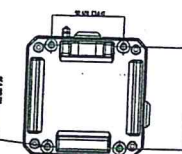
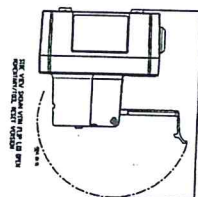
DRAWING NUMBER

SBS-J08503-DC18-118-011

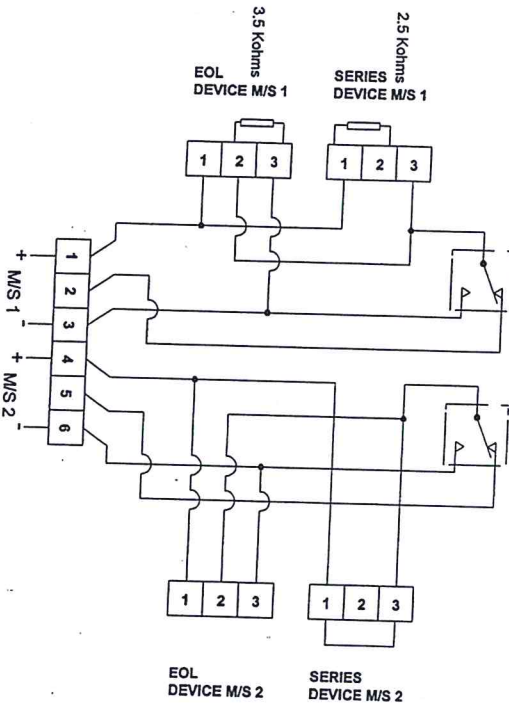




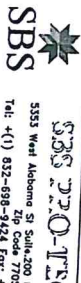
ISO VIEW: 300A UNIT UP LID OPEN  
DIRECTION: 1 / DIRECTION: 2



**ELECTRICAL WIRING**  
Optional Single or Double Microswitch  
Circuit shown with Unit un-operated : GNEXCPT UL38 PCB  
Version M/S 1  
M/S 2



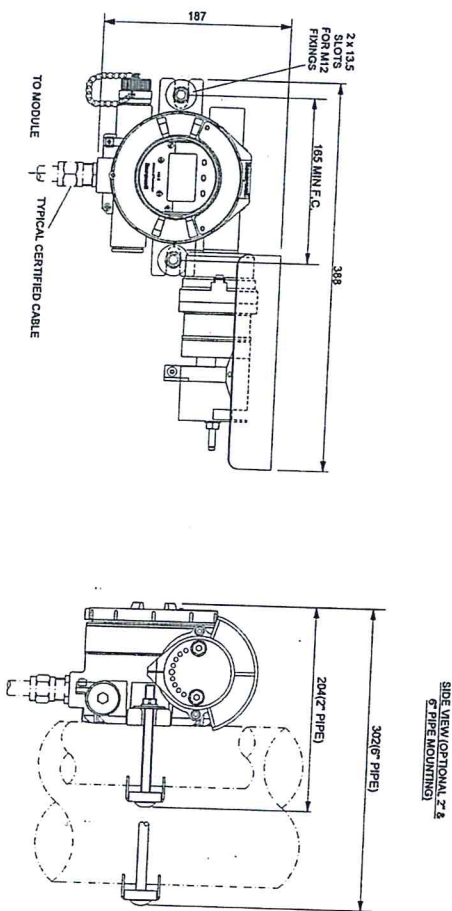
# ABB TURBOCHARGERS



Project Name: EGPC CRUDE OIL

|               |                                        |
|---------------|----------------------------------------|
| DRAWING TITLE | INSTRUMENT TERMINATI<br>HOOK UP DETAIL |
| SCALE         | DRAWING NUMBER                         |
| NONE          | SBS-JOB503-DC18-118-011                |

COMBUSTIBLE GAS DETECTOR



- 2) ELEVATION OF DEVICE SHALL BE AS I  
SITE CONDITIONS TO FIT THE DEVICE IN FR  
OF AND AT THE CENTER OF FRESH AIR INT,  
WITH A DISTANCE OF 30 TO 40 CM AWAY FR  
IT.
- 3) A DEVICE SHALL BE INSTALLED AS PE  
NOTE 2 FOR EACH HVAC UNIT.
- 4) MODULE SHALL BE INSTALLED INDOOI  
TO THE WALL BEHIND THE DEVICE.

| REV | DATE | DESCRIPTION | PROPOSED | DESIGNED | APPROVED |
|-----|------|-------------|----------|----------|----------|
|     |      |             |          |          |          |
|     |      |             |          |          |          |
|     |      |             |          |          |          |
|     |      |             |          |          |          |
|     |      |             |          |          |          |
|     |      |             |          |          |          |
|     |      |             |          |          |          |
|     |      |             |          |          |          |
|     |      |             |          |          |          |

المرکز لخدمات المهندسين والميكانيكا  
**Enppi**  
ENGINEERING FOR THE PETROLEUM AND PROCESS INDUSTRIES  
ENPPI PROJECT NUMBER 4176-503

Project Name: EGPC CRUDE OIL TANK FARM

DRAWING TITLE

INSTRUMENT TERMINATION AND  
HOOK UP DETAILS

SCALE

|                |              |          |
|----------------|--------------|----------|
| DRAWING NUMBER | SHEET NUMBER | REVISION |
|                |              |          |

## FS24X Detector

FS24X is a quantum leap in flame and fire detection with its sophisticated software and detection technology.

The FS24X is the latest generation high technology Multi-Spectrum Triple IR (IR/IR/IR/Visible) Fire and Flame Detector, which is part of our FSX family of advanced technology Electro-Optical fire detectors. Using our patented WideBand IR™, WideBand 4.3 micron IR™, and Visible detection technology, the FS24X is a quantum leap in flame and fire detection. Sophisticated software algorithms and dual microprocessors ensure that the FS24X has the highest fire detection performance combined with optimal false alarm rejection.

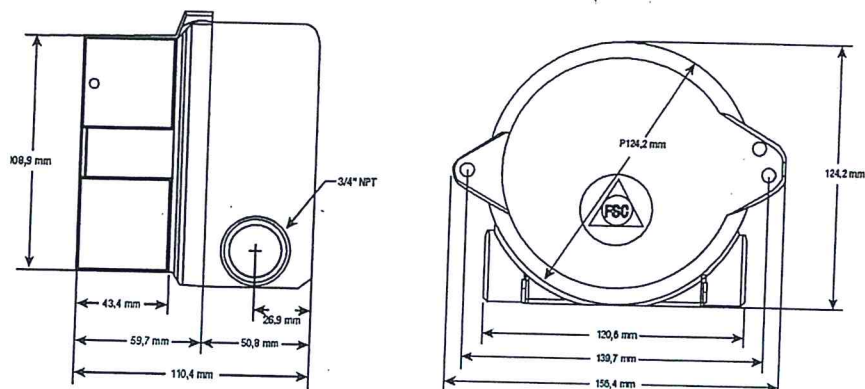
The WideBand IR™ Infrared technology using high-speed solid-state Quantum sensors allows detection of all types of fires, hydrocarbon and non-hydrocarbon, in all weather conditions. If the detector's signal is blocked by ordinary window glass, the patented WideBand IR sensors will still alarm to the fire albeit at a reduced sensitivity and slower response time.



Dual microprocessors provide a high level of fail-safe operation combined with fast and reliable performance. The master microprocessor performs high-speed digital sampling and signal processing calculations, while the slave microprocessor handles various sensor data, performs communications, self-diagnostics and provides interface versatility and additional memory for storing Event Log and FirePic™ data.


The FSX family of detectors feature our patented FirePic data storage and information retrieval facility. FirePic™ records pre-fire data, which can be recovered from the Detector's non-volatile flash memory for post fire analysis and postulation of the fire cause. Additionally, unique Real-Time Graphing (RTG™) allows viewing of the data which the Detector actually sees. A combination of outputs makes the FS24X a truly versatile detector for today's demanding industrial requirement. The FS24X detector has a detection range greater than 60 m (200 feet) (Very High Sensitivity setting) for the detection of a 0.1 m<sup>2</sup> (one square-foot) Heptane reference fire and has a cone of vision far greater in volumetric coverage than any other Multi-Spectrum IR Detector. This means fewer Detectors can be used as compared to other manufacturers' Detectors.

GENERAL DIMENSIONS  
Side and Back Views  
(All Dimensions in mm)





# General Specification

| GENERAL SPECIFICATIONS |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FIELD OF VIEW          | FS24X-9: 90° cone of vision, $\pm 45^\circ$ from on axis<br>FS24X-2: 110° cone of vision, $\pm 55^\circ$ from on axis                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| SENSITIVITY            | Very high (60m), high (45m), medium (30m) and low (15m) - switch selectable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| RESPONSE TIME          | 3-5 Seconds to 0.1 m <sup>2</sup> (1 sq. ft.) n-Heptane fire at 30 m (100 ft.)<br>3-10 Seconds to 0.1 m <sup>2</sup> (1 sq. ft.) n-Heptane fire at 60 m (200 ft.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| SPECTRAL SENSITIVITY   | Visible: 400 - 700 nanometres<br>Near Band IR: 0.7 - 1.1 microns<br>Wide Band IR: 1.1 - 3.0 microns<br>Wide Band IR: 3.0 - 5.0 microns                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| OPERATING VOLTAGE      | 24 Vdc nominal (18-32 Vdc) - regulated                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| POWER CONSUMPTION      | Operating: 56 mA @ 24 Vdc nominal<br>Alarm: 106 mA @ 24 Vdc nominal<br>Heater: 155 mA - additional<br>Note: Heater will turn on at -17°C (0°F)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| OUTPUT RELAYS          | Fire Alarm: SPDT (NO / NC) - De-energised/energised, latching/non-latching<br>Fault: SPST (NO) - De-energised, latching/non-latching<br>Auxiliary: SPDT (NO / NC) - De-energised/energised, latching/non-latching<br>Contacts rating: 1 amp @ 24 Vdc                                                                                                                                                                                                                                                                                                                                                                                                                 |
| ANALOG OUTPUT          | 0 - 20 mA stepped - source or sink user selectable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| LOOP RESISTANCE        | 50 - 400 Ohms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| COMMUNICATION          | One of the following - user selectable:<br>• RS-485, ModBus Protocol<br>• RS-485, FireBus II<br>• RS-485 Special (optional)<br>• HART, Optional plug-in module (not available on EN54-10 units)                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| VISUAL INDICATORS      | Green LED: Power<br>Red LED: Alarm<br>Yellow LED: Fault                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| TEMPERATURE RANGE      | Operating: 110° Field of View FS24X: -40°C to +85°C (-40°F to +185°F); 90° Field of View FS24X: -60°C to +85°C (-76°F to +185°F)<br>Storage: -55°C to +110°C (-67°F to +230°F)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| HUMIDITY RANGE         | 5 to 98% relative humidity, non-condensing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| VIBRATION              | Meets or exceeds MilSpec 810C Method 514.2, Curve AW12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| WIRING                 | 2.5 mm <sup>2</sup> (14 AWG) to 0.326 mm <sup>2</sup> (22 AWG); shielded cable recommended                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| CONDUIT ENTRIES        | Standard: Two M25 or two 3/4" NPT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| ENCLOSURE MATERIALS    | Copper-free powder coated aluminum or 316 stainless steel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| ENCLOSURE TYPE         | 4X, IP66 and NEMA 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| CERTIFICATIONS         | FM: Class I, Div. 1 & 2, Groups B, C, & D; Class II, Div. 1 & 2, Groups E, F, & G; Class III<br>ATEX/IECEx: II 2 G Ex db IIC T4 (Ta: -60 to +110°C), T5 (Ta: -60 to +75°C), T6 (Ta: -60 to +60°C), II 2 D Ex tb IIC T135°C (FS24X-9, 90° Field of View)<br>II 2 G Ex db IIC T4 (Ta: -40 to +110°C), T5 (Ta: -40 to +75°C), T6 (Ta: -40 to +60°C), II 2 D Ex tb IIC T135°C (FS24X-9, 110° Field of View)<br>CE Complies with EN6100-6-4 & EN50130-4<br>INMETRO<br>CU-TR<br>SIL Rating: FMEDA available on request<br>EN54-10:  FS20X certified 1175a/01 (LPCB); CPR 0832-CPR-F0515 |
| SHIPPING WEIGHT        | Aluminum: 1.6 kg (3.6 lbs)<br>Stainless Steel: 3.2 kg (7 lbs)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| MOUNTING               | Swivel bracket assembly - optional                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| WARRANTY               | Three years from date of shipping                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

## FEATURES

- Patented WideBand IR™ technology
- Patented Electronic Frequency Analysis™
- Visible sensor for optimum false alarm rejection
- Selectable detection sensitivities
- Field-of-View: 110° cone-of-vision (90° cone-of-vision model also available)
- Dual microprocessors for reliable performance
- Real-time clock for accurate time dating of events
- FirePic™ - pre-fire event data storage
- Event log with date and time stamp
- RS-485 ModBus communication
- Non-isolated 4-20 mA Analog output (sink or source)
- Alarm, Fault and Fire Verification relays
- Automatic optical path and electronic self-test
- Patented Electronics Module for component protection with easy plug-in terminations and field installation
- Two 25 mm or 3/4" NPT conduit entries
- Low power consumption
- High RFI and EMI immunity
- FM, ATEX, CE mark approvals
- CU-TR approved
- INMETRO approved
- Meets SIL 2 requirements
- Certified to EN54-10:2002 (FS24X-9) option
- FM 3260 Performance

## BENEFITS

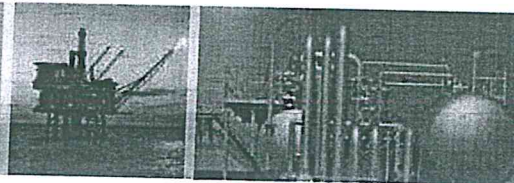
- Detects hydrocarbon and non-hydrocarbon fuel fires in all environmental conditions
- User selectable outputs
- Wide operating temperature range
- Optimal false alarm rejection
- Minimal maintenance for trouble-free operation
- PC software and Interface Module (FSiM) for fault diagnostics, real-time graphics (RTGs), and downloading of FirePics™ and event log
- Suitable for a wide variety of applications
- Easy electronics module replacement
- Test lamps for manual testing

## APPLICATIONS

- Refineries and oil production facilities
- Off-shore platforms
- Turbine/Compressor enclosures
- Oil and gas pipelines and pumping stations
- LNG/LPG loading and unloading facilities
- Natural gas and CNG plants
- Ethanol, Methanol, and IPA production and storage
- Crude oil and gasoline storage and tank farms
- Aircraft hangars
- Paint and solvent storage
- Chemical production, storage, and loading facilities
- Power plants



# Technical Summary

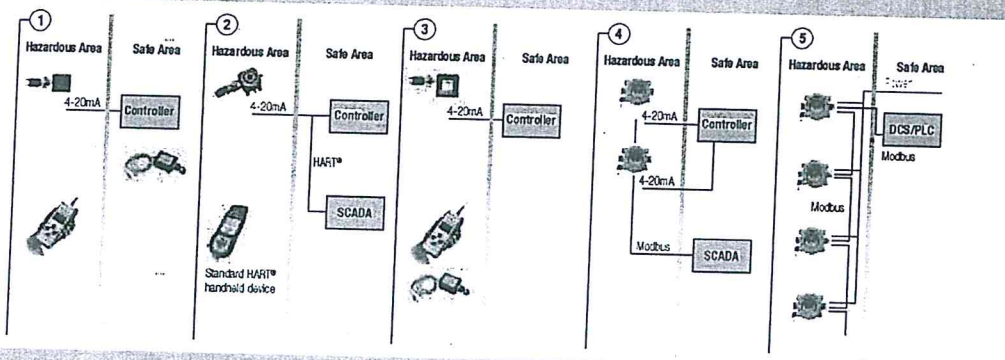


## Searchpoint Optima Plus Specification

|                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                 |
|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| Measuring Range                                         | 0-100% LEL, wide selection of Hydrocarbon gas and vapour calibrations. Different measuring ranges and solvent calibrations available for specialist applications                                                                                                                                                                                                                                                                                                                                 |                                                                                                 |
| Signal Output                                           | 4-20mA auto-sensing sink or source                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                 |
| Inhibit                                                 | 1-3mA (Default 2mA)                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                 |
| Warning                                                 | 0-6mA (Default 3mA *)                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                 |
| Fault                                                   | 0mA (HART® units adjustable to 1mA)                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                 |
| Over Range                                              | 20-21.5mA (Default 21mA)                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                 |
| Digital Output                                          | Optional Multidrop Modbus RS485 (via XNIX, Optional HART® over 4-20mA output (HART® version 7)                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                 |
| Material                                                | 316 stainless steel                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                 |
| Weight                                                  | 1.6kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                 |
| Accuracy                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                 |
| Optima Plus (Hydrocarbon)                               | Baseline < +1% FSD, 50% FSD < ±2% FSD                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                 |
| Optima Plus (Ethylene)                                  | Baseline < ±2% FSD, 50% FSD < ±3% FSD                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                 |
| Repeatability                                           | < ±2% FSD at 50% FSD                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                 |
| Linearity                                               | < 5% FSD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                 |
| Response Time                                           | T50 < 3 seconds, T90 < 4 seconds (methane)                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                 |
| Operational and Certified**                             | -40°C to +65°C temperature range<br>**CU-TR-EX (Russia) Approval - XTC Version, Certified Temperature Range -60°C to +65°C                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                 |
| Long Term Stability<br>(as defined in<br>EN 60079-29-1) | Baseline                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Methane 100 %LEL Range: ≤ ± 2 %FSD<br>Ethylene 100 %LEL Range: ≤ ± 4 %FSD                       |
|                                                         | 50 %FSD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Methane 100 %LEL Range: ≤ ± 4 %FSD<br>Ethylene 100 %LEL Range: ≤ ± 5 %FSD                       |
| Drift Over Temperature<br>Range (-40 °C to 65 °C)       | Baseline                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ≤ ± 2 %FSD                                                                                      |
|                                                         | 50 %FSD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Methane 100 %LEL Range: ≤ ± 0.131 %FSD per °C<br>Ethylene 100 %LEL Range: ≤ ± 0.078 %FSD per °C |
| Variation with Pressure                                 | 0.1% (of reading) per mbar                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                 |
| Power Supply                                            | 18-32Vdc (24Vdc nom), < 4.5W max                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                 |
| Environmental Protection                                | IP 66 / 67                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                 |
| Diagnostics<br>(and Re-calibration)                     | Via certified Hand-held Interrogator, XNIX or optional HART® communications                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                 |
| Safety Approvals                                        | ATEX: Baseefa13ATEX0296X<br>II 2 GD Ex d op is IIC Gb Ex tb IIC Db<br>T96°C (T <sub>amb</sub> -40°C to +65°C)<br>T86°C (T <sub>amb</sub> -40°C to +55°C)<br>IP 66/67<br>UL / CSA: Class 1, Div 1, groups B, C, and D (-40°C to +65°C)<br>IECEx: II 2 GD Ex d op is IIC Gb Ex tb IIC Db T86°C (T <sub>amb</sub> -40°C to +55°C) or T96°C (T <sub>amb</sub> -40°C to +65°C) IP66/67<br>CU-TR-EX (Russian Customs Union) - XTC Version 1Ex d op is IIC T5/T4 Gb X (T <sub>amb</sub> -60°C to +65°C) |                                                                                                 |
| Performance Approvals                                   | EN 60079-29-1 (BVS 03 ATEX G 016 X), CSA C22.2 152, FM ANSUSA-12.13.01, Russian Pattern Approval (Metrology) - XTC Version ***                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                 |
| Functional Safety                                       | IEC61508 Safety Integrity Level 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                 |
| EMC Compliance                                          | EN 50270:2006                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                 |
| Software                                                | EN 50271:2010                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                 |
| Marine Approvals                                        | Marine Equipment Directive (MED), type approvals from DNV, BV, ABS, Lloyd's Register                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                 |

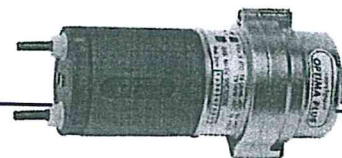
\* Note for ATEX compliance the warning value should not be set between 3 and 5mA  
\*\*\* Please refer to manual for full information

## Installation Options



# Honey

## Searchpoint Optima Plus SPECIFICATIONS



| Searchpoint Optima Plus Specification             |                                                                                                                                                                                                                                                                                                                                                      |                                                                                                 |
|---------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| Use                                               | Searchpoint Optima Plus is an advanced, Point-Infrared, flammable gas detector certified for use in potentially explosive atmospheres                                                                                                                                                                                                                |                                                                                                 |
| Measuring Range                                   | 0-100% LEL, wide selection of Hydrocarbon gas and vapor calibrations. Different measuring ranges and solvent calibrations available for specialist applications                                                                                                                                                                                      |                                                                                                 |
| Signal Output                                     | 4-20mA autosensing sink or source                                                                                                                                                                                                                                                                                                                    |                                                                                                 |
| Inhibit                                           | 1-3mA (Default 2mA)                                                                                                                                                                                                                                                                                                                                  |                                                                                                 |
| Warning                                           | 0-6mA (Default 3mA *)                                                                                                                                                                                                                                                                                                                                |                                                                                                 |
| Fault                                             | 0mA (IART® units adjustable to 1mA)                                                                                                                                                                                                                                                                                                                  |                                                                                                 |
| Over Range                                        | 20-21.5mA (Default 21mA)                                                                                                                                                                                                                                                                                                                             |                                                                                                 |
| Digital Output                                    | Optional Multidrop Modbus RS485 (via DX100(M)), Optional HART® over 4-20mA output (HART® version 7)                                                                                                                                                                                                                                                  |                                                                                                 |
| Material                                          | 316 stainless steel                                                                                                                                                                                                                                                                                                                                  |                                                                                                 |
| Weight                                            | 1.6kg                                                                                                                                                                                                                                                                                                                                                |                                                                                                 |
| Accuracy                                          | Optima Plus (Hydrocarbon) Baseline < ±1% FSD, 50% FSD < ±2% FSD<br>Optima Plus (Ethylene) Baseline < ±2% FSD, 50% FSD < ±3% FSD                                                                                                                                                                                                                      |                                                                                                 |
| Repeatability                                     | < ±2% FSD at 50% FSD                                                                                                                                                                                                                                                                                                                                 |                                                                                                 |
| Linearity                                         | < 5% FSD                                                                                                                                                                                                                                                                                                                                             |                                                                                                 |
| Response Time                                     | T50 < 3 seconds, T90 < 4 seconds (methane)                                                                                                                                                                                                                                                                                                           |                                                                                                 |
| Operational and Certified                         | -40°C to +65°C temperature range                                                                                                                                                                                                                                                                                                                     |                                                                                                 |
| Long Term Stability (as defined in EN 60079-29-1) | Baseline                                                                                                                                                                                                                                                                                                                                             | Methane 100 %LEL Range: ≤ ± 2 %FSD<br>Ethylene 100 %LEL Range: ≤ ± 4 %FSD                       |
|                                                   | 50 %FSD                                                                                                                                                                                                                                                                                                                                              | Methane 100 %LEL Range: ≤ ± 4 %FSD<br>Ethylene 100 %LEL Range: ≤ ± 5 %FSD                       |
| Drift Over Temperature Range (-40 °C to 65 °C)    | Baseline                                                                                                                                                                                                                                                                                                                                             | ≤ ± 2 %FSD                                                                                      |
|                                                   | 50 %FSD                                                                                                                                                                                                                                                                                                                                              | Methane 100 %LEL Range: ≤ ± 0.131 %FSD per °C<br>Ethylene 100 %LEL Range: ≤ ± 0.078 %FSD per °C |
| Variation with Pressure                           | 0.1% (of reading) per mbar                                                                                                                                                                                                                                                                                                                           |                                                                                                 |
| Power Supply                                      | 18-32Vdc (24Vdc nom), < 4.5W max                                                                                                                                                                                                                                                                                                                     |                                                                                                 |
| Environmental Protection                          | IP 66 / 67                                                                                                                                                                                                                                                                                                                                           |                                                                                                 |
| Diagnostics (and Re-calibration)                  | Via certified Hand-held Interrogator, or optional IART® communications                                                                                                                                                                                                                                                                               |                                                                                                 |
| Safety Approvals                                  | UL / CSA: Class 1, Div 1, groups B, C, and D (-40°C to +65°C)<br>IECEx: Ex d IIC Ib III C T86°C (T <sub>amb</sub> -40°C to +55°C) or T96°C (T <sub>amb</sub> -40°C to +65°C) IP66/67<br>ATEX: BAS99ATEX2259X<br>II 2 GD Ex d IIC Gb Ex tb III C Db<br>T96°C (T <sub>amb</sub> -40°C to +65°C)<br>T86°C (T <sub>amb</sub> -40°C to +55°C)<br>IP 66/67 |                                                                                                 |
| Performance Approvals                             | CSA C22.2 152, FM ANS/ISA-12.13.01, EN 60079-29-1 (BVS 03 ATEX G 016 X)                                                                                                                                                                                                                                                                              |                                                                                                 |
| Functional Safety                                 | IEC61508 Safety Integrity Level 2                                                                                                                                                                                                                                                                                                                    |                                                                                                 |
| EMC Compliance                                    | EN 50270:2006                                                                                                                                                                                                                                                                                                                                        |                                                                                                 |
| Software                                          | EN 50271:2010                                                                                                                                                                                                                                                                                                                                        |                                                                                                 |

\* Note for ATEX compliance the warning value should not be set between 3 and 5mA

### Find out more

[www.honeywellanalytics.com](http://www.honeywellanalytics.com)

Toll-free: 800.538.0363

#### Please Note:

While every effort has been made to ensure accuracy in this publication, no responsibility can be accepted for errors or omissions. Data may change, as well as legislation, and you are strongly advised to obtain copies of the most recently issued regulations, standards, and guidelines. This publication is not intended to form the basis of a contract.

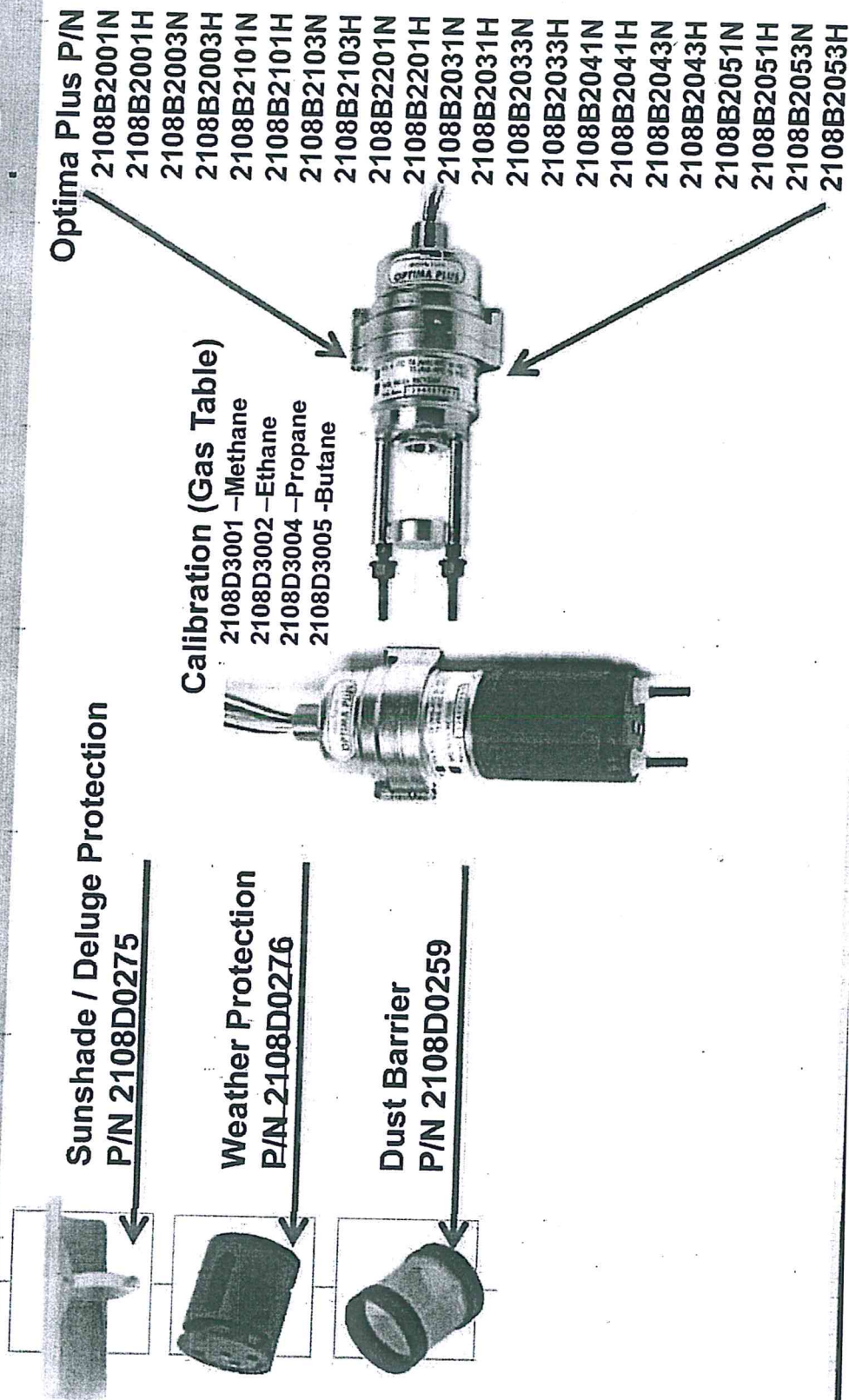
SS0276\_v2 4/13  
© 2013 Honeywell Analytics



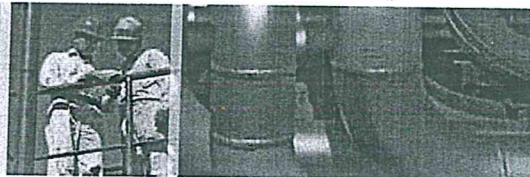
# Honeywell

→ Honeywell.com

## Optima Plus Part No Decodification 2108N4000N/H



## Searchpoint Optima Plus



### Why Infrared?

- Failsafe operation
- Fast speed of response
- Reduced routine maintenance
- Immune to catalytic poisons
- Long operating life
- Works in inert atmospheres

### Why Searchpoint Optima Plus is the right choice...

- Experience gained from over 100,000 units installed worldwide
- Improved reliability
- Optional HART® over 4-20mA output
- Can detect a wide range of hydrocarbon gases including solvents
- Increased reliability with no moving parts
- Increased stability from self compensating optics
- Immune to long term component drift
- Remote functional gas test facility
- Certified for North American and European Hazardous areas
- Increased false alarm rejection
- Increased uptime with contaminated optics warning
- Dynamic Heating Control ensures condensation free optics
- No undetected failures
- Improved diagnostics
- Integral event logging
- Reduced power consumption
- Certified to many hazardous area classification schemes including: European (ATEX), UL, CSA, IECEx and more

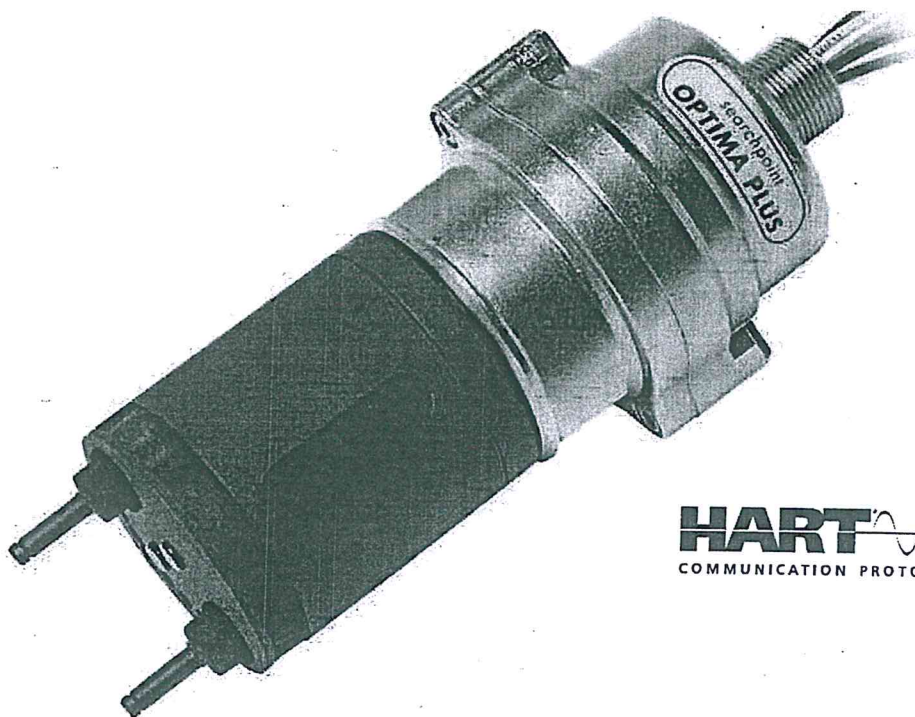
## Market leading point infrared Hydrocarbon gas detector offering proven performance and sensitivity

With over 40 years experience in the design, manufacture, installation and maintenance of point infrared gas detection, Honeywell Analytics currently has a Worldwide installed base of over 100,000 infrared point Hydrocarbon gas detectors in a wide spectrum of applications from light industrial to the most demanding of offshore petrochemical environments.

Searchpoint Optima Plus is an infrared point Hydrocarbon gas detector certified for use in potentially explosive atmospheres. The unit's infrared detection principle offers the fastest speed of response and fail-to-safe operation, ensuring that your plant is compliant, your personnel are protected and your production process can deliver maximum uptime. Reduced routine maintenance, when compared with conventional electro-catalytic based gas detectors, provides low ongoing cost of ownership. The development of advanced internal fault diagnostics and false alarm rejection algorithms ensures that Searchpoint Optima Plus delivers the highest level of operational integrity.

Typical applications include environments that may suffer from the presence of catalytic bed poisons or inhibitors, or where there are harsh environmental conditions forcing increased time between routine maintenance, for example; offshore oil and gas platforms, floating production storage and offloading (FPSO) vessels, tankers, onshore oil and gas terminal refineries, LNG / LPG bottling plants, gas compressor / metering stations, gas turbine power plants, refineries, solvent printing and coating plants.

Over 100 gas and vapour calibrations are available. For a list of detectable gases and vapours, please contact our Customer Support team or your local distributor.



**HART**   
COMMUNICATION PROTOCOL



## Connecting the OELD to Searchline Excel

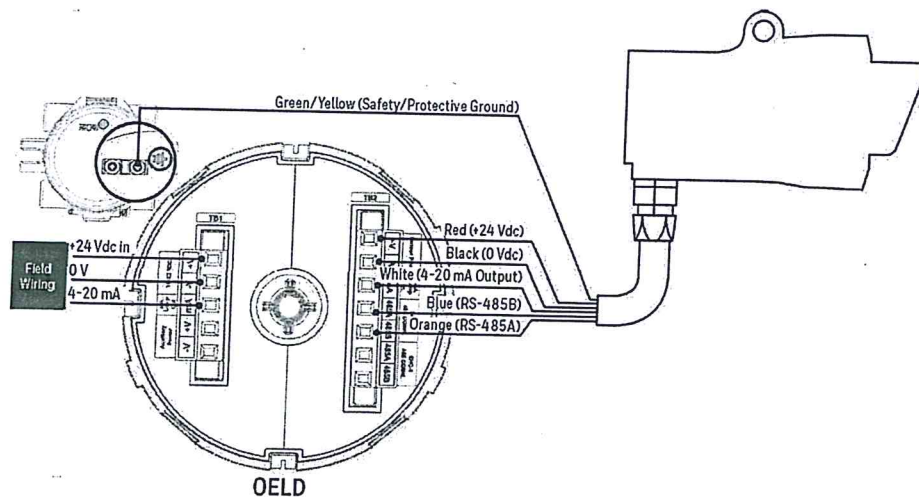


Figure 10. Wiring Diagram for Searchline Excel

The earth bonding arrangement must ensure that the maximum peak voltage between the unit case earth and any field cable conductor is less than 350V. Voltages in excess of this can cause permanent damage to the units' internal RFI protection filters.

## Connecting the OELD to Searchline Excel Cross-Duct (XD)

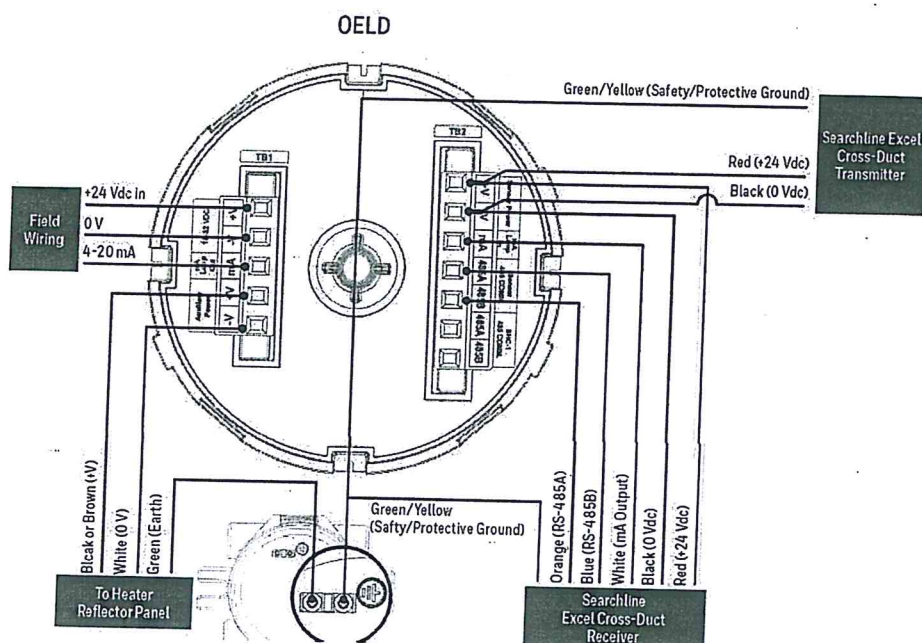
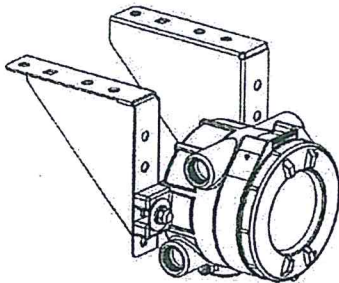


Figure 11. Wiring Diagram for Searchline Excel Cross-Duct

The earth bonding arrangement must ensure that the maximum peak voltage between the unit case earth and any field cable conductor is less than 350V. Voltages in excess of this can cause permanent damage to the units' internal RFI protection filters.

### 2.2.2 Ceiling Mount Bracket Kit (1226A0355)



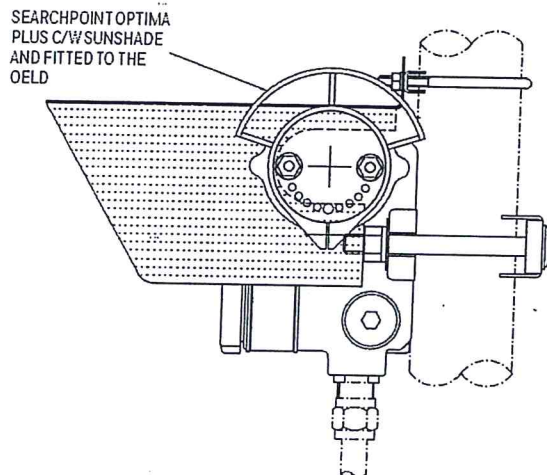
The Ceiling Mount Bracket Kit (1226A0355) allows the OELD to be mounted to the ceiling. The kit includes two stainless steel ceiling mount brackets, bolt and nuts.

**Note**

When considering the final mounting position using the Ceiling Mount Bracket Kit, consider the ability to see the OELD display when installed.

<Figure 3. Ceiling-Mounted OELD>

### 2.2.3 Sunshade (94000-A-1006)



A sunshade manufactured from 316 stainless steel, is available which covers the OELD and can extend over either side to also provide protection to a Searchpoint Optima or Searchline Excel

The sunshade slots over the OELD mounting bolts so no additional fixings are required and is stainless steel 316.

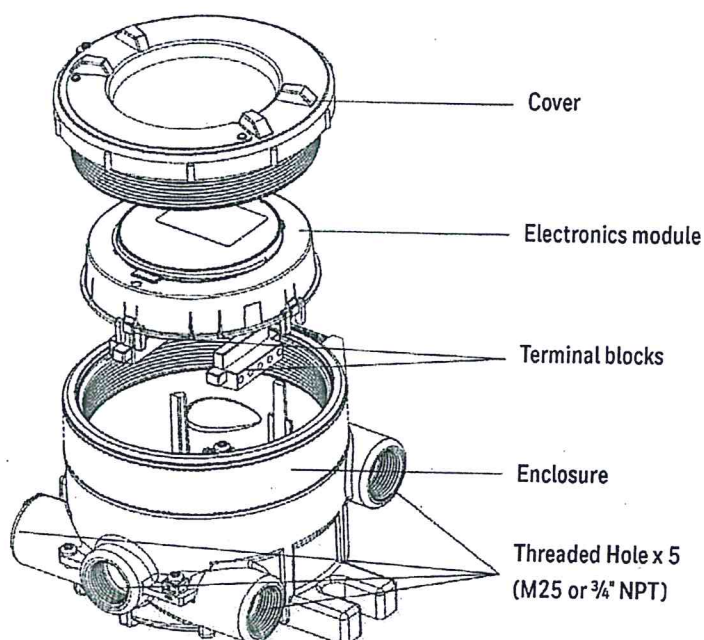
Use the sunshade to reduce the effects of direct solar heating.

<Figure 4. OELD with Sunshade>



**WARNING**

When operating in the hazardous location, ensure that the mobile device being used is suitably certified for that area.



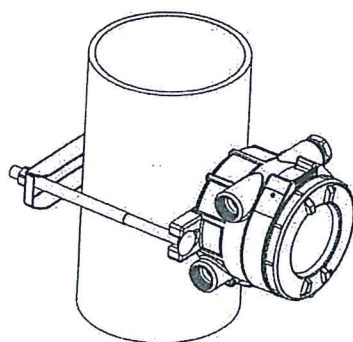
<Figure 1. OELD Exploded View>

## 2.2 Optional Accessories

### Note

The optional pipe mount, ceiling bracket and sunshade accessories are not included as part of the assessment to EN60079-29-1.

### 2.2.1 Pipe Mount Kit (1226A0358)

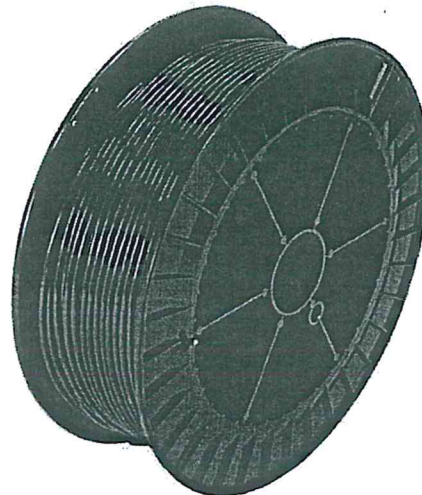


<Figure 2. Pipe-Mounted OELD>

The Pipe Mount kit (1226A0358) allows the OELD to be mounted to pipe from 2" to 6" (50 to 150 mm) in diameter. The kit includes the pipe mount bracket, two carriage bolts, nuts, and lock washers.

# Digital Linear Heat Detection Cable 88°

## with Nylon Armline II Series



### Review

Digital Linear Heat Detection (LHD) cable with a 88°C fixed temperature activation rating has a nylon outer sheath for UV protection and increased durability for external applications. It is available in 100m, 500m and 1,000m lengths.

A range of digital sensor cables provides a very simple fixed temperature heat detection system which can be used in many applications where other forms of detection are not suitable.

### Operation

A range of digital LHD cables contains a pair of twisted, distance, tri-metallic conductors sheathed with advanced temperature sensitive polymers. The cable operates by softening insulation of the conductors, the tension of the twisted conductors then causes the two cores to fuse together. The cable provides a simple switch operation which when combined with a combination of end-of-line (EOL) monitoring and trigger resistors can signal an alarm to any fire monitoring system through any monitored input, i.e. conventional detection or addressable interface unit.

### Location Control Unit

In addition to the LHD sensor cable, an optional digital location unit which monitors the sensor cable and can identify the length of the sensor cable where an alarm condition has occurred, is also available.

### Mounting fixings for all applications

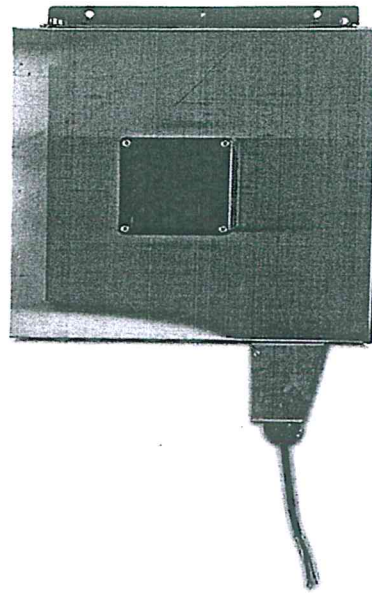
Of 'edge', 'A', 'P' and 'T' clips allow the cable to be easily installed. The clips provide heat insulation as well as support the cable at the correct distance from cable trays, steel ceilings and walls.

### Standard Features

- cUL/UL 521 approved
- FM approved (Class 3210)
- Up to 3,000m per zone
- Detection along total cable length
- Optional extrusions for different environments
- Simple maintenance free installation
- Suitable for use in hazardous areas

# Auto Cable Reeler

## Armline II Series



### Overview

Automatic cable reelers are supplied with an explosion proofarbonate junction box (K241EX) or Stainless Steel junction 247EX). A cable reeler is normally placed on the roof of a floating roof tank structure where it ensures electrical continuity of a linear heat detection (LHD) sensor cable and the fire alarm system during the upward and downward movement of the floating roof. The cable reeler ensures that the cable remains taut and prevents that cable from getting jammed in the moving parts of the roof.

### Installation

Mounted on the top rim of a tank body, the cable is connected to a junction box (eg. 1-B6782-190) on the tank roof. The reeler follows the movement of the roof, uncoiling the cable as the roof lowers, and recoiling the cable when the roof rises.

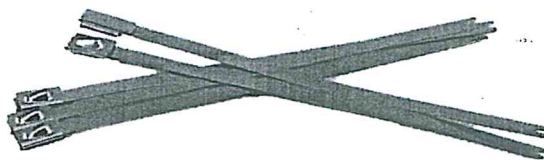
### Application

3836-K241EX supports a cable drop of up to 25m. For hazardous areas, suitable safety barriers are required.

### Standard Features

- Simplifies electrical connections of floating roof tanks
- Collects and releases cable in moving installations avoiding cable jams
- Supplied with suitable chemical resistant cable
- Flame retardant

# LHD Cable Accessory - Tie Wrap & Tool (ACA-TW/ACA-TWT) Armline II Series



## Overview

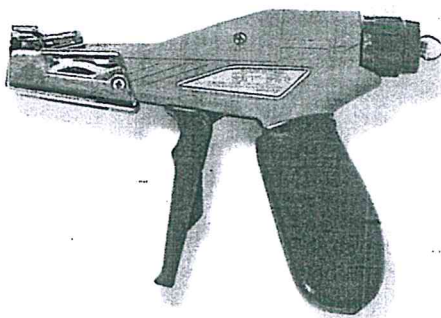
ACA-TW series tie wraps (cable ties) are designed to secure heat sensor cable to the LHD brackets and clips. The tie wraps are available in various temperature ratings for matching the temperature specifications of the selected LHD cable.

PA66 and stainless steel variants are suitable for outdoor applications whilst stainless steel variants additionally allow for the installation of very high temperature digital cable.

ACA-TWT is available for the stainless steel tie wrap application.

## Stainless Steel Tie Wrap Tool

ACA-TWT is a tie wrap (cable tie) tensioner and cutter for stainless steel cable ties.



## Standard Features

### Tie Wrap

- Easy installation of linear heat cable
- For use with LHD brackets and clips
- Indoor and outdoor applications
- Available in PA66, ETFE and stainless steel
- Available in quantities of 25 or 100

### Tie Wrap Tool (Stainless Steel)

- Easy fitment of stainless steel tie wraps
- Tensions and cuts



# -ID Cable Accessory - Silicone Sleeve (ACA-RS) Formline II Series



## Overview

ACA-RS series silicone sleeves are designed to protect linear sensor cable against mechanical damage from the tie wrap when the cable is secured. The ACA-RS is a split sleeve to protect the sensor cable from being crushed or damaged attached to fixing clips or brackets. It acts as an insulator to prevent the transfer of heat through these metal clips or brackets to the LHD cable, and is fire resistant.

## Standard Features

- Protection of linear heat cable against mechanical damage
- For use with any LHD fastening brackets or clips
- Fire resistant
- Available in quantities of 25 or 100

# HD Cable Accessory - Bracket "L" with Sleeve (ACA-BL)

Armline II Series

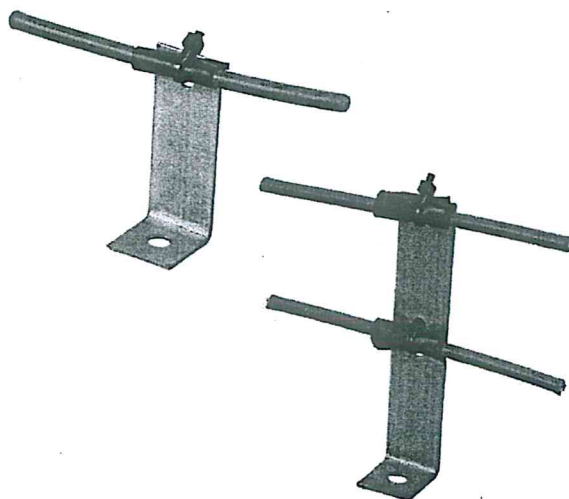
## View

ACA-BL series L-bracket is designed to support linear heat cable above the risk area, eg. the top run of a cable tray. A silicon sleeve is supplied with the unit to protect the sensor when fastened to the bracket.

## Installation

ACA-BL may be fitted to the cable tray and secured in place with a suitable bolt and nut at one end. The hole at the other end of the bracket allows for the securing of the sensor cable using the sleeve and cable tie. The L-bracket allows support for the sensor cable at the selected distance away from the detection

Recommended spacing: 1m.

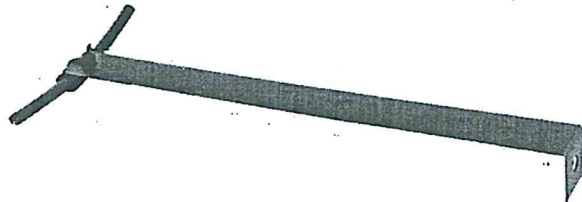


## Standard Features

- Easy installation of linear heat cable
- For use on cable trays
- Available in zintec or stainless steel
- Available in quantities of 25 or 100

# A-BL20-025

Cable Accessory - Bracket "L", 200mm (7.9") (Zintec) w/ Sleeve - Qty25



## Details

---

- Easy installation of linear heat cable
- For use on cable trays
- Available in zintec
- Available in quantities of 25





## PS10 SERIES PRESSURE SWITCH



UL, cUL, and CSFM Listed, FM and LPC Approved, NYMEA Accepted, CE Marked

Dimensions: 3.78" (9.6cm)W x 3.20" (8.1cm)D x 4.22" (10.7cm)H

Conduit Entrance: Two knockouts provided for 1/2" conduit. Individual switch compartments and ground screws suitable for dissimilar voltages.

Enclosure: Cover - Die-cast with textured red powdercoat finish, single cover screw and rain lip.

Base - Die-cast

Pressure Connection: Nylon 1/2" NPT Male

Factory Adjustment: 4 - 8 PSI (0.27 - 0.55 BAR)

Differential: 2 PSI (0.13 BAR) typical

Maximum System Pressure: 300 PSI (20.68 BAR)

Switch Contacts: SPDT (Form C)

10.1 Amps at 125/250VAC, 2.0 Amps at 30VDC

One SPDT in PS10-1, Two SPDT in PS10-2

Environmental Specifications:

NEMA 4/IP66 Rated Enclosure - indoor or outdoor when used with NEMA 4 conduit fittings.

Temperature range: -40°F to 140°F (-40°C to 60°C)

Service Use:

Automatic Sprinkler

One or two family dwelling

Residential Occupancy up to four stories

National Fire Alarm Code

NFPA-13

NFPA-13D

NFPA-13R

NFPA-72

### Ordering Information

| Model  | Description                                 | Stock No. |
|--------|---------------------------------------------|-----------|
| PS10-1 | Pressure switch with one set SPDT contacts  | 1340103   |
| PS10-2 | Pressure switch with two sets SPDT contacts | 1340104   |
|        | Hex Key                                     | 5250062   |
|        | Cover Tamper Switch Kit                     | 0090200   |

### Tamper

Cover incorporates tamper resistant fastener that requires a special key for removal. One key is supplied with each device. For optional cover tamper switch kit, order Stock No. 0090200. See bulletin #5401200 PSCTSK.

### Installation

The Potter PS10 Series Pressure Actuated Switches are designed for the detection of a waterflow condition in automatic fire sprinkler systems of various designs such as wet pipe systems with alarm check valves, dry pipe, preaction, or deluge valves. The PS10 is also suitable to provide a low pressure supervisory signal; adjustable between 4 and 15 psi (0.27 and 0.3 BAR).

Apply Teflon tape to the threaded male connection on the device. (Do not use pipe dope)

Device should be mounted in the upright position (threaded connection down). Tighten the device using a wrench on the flats on the device.

### Wiring Instructions

Remove the tamper resistant screw with the special key provided. Carefully place a screwdriver on the edge of the knockout and sharply apply a force sufficient to dislodge the knockout plug. See Fig 9 Run wires through an approved conduit connector and affix the connector to the device.

Connect the wires to the appropriate terminal connections for the service intended. See Figures 2, 4, 5, and 6. See Fig 7 for two switch, one conduit wiring.

### Testing

Operation of the pressure alarm switch should be tested upon completion installation and periodically thereafter in accordance with the applicable PA codes and standards and/or the authority having jurisdiction manufacturer recommends quarterly or more frequently).

### Test System

Method 1: When using PS10 and control unit with retard - connect PS10

into alarm port piping on the input side of retard chamber and electrically connect PS10 to control unit that provides a retard to compensate for surge. Insure that no unsupervised shut-off valves are present between the alarm check valve and PS10.

Method 2: When using the PS10 for local bell application or with a control that does not provide a retard feature - the PS10 must be installed on the alarm outlet side of the retard chamber of the sprinkler system.

Testing: Accomplished by opening the inspector's end-of-line test valve. Allow time to compensate for system or control retard.

Note: Method 2 is not applicable for remote station service use, if there is an unsupervised shut-off valve between the alarm check valve and the PS10.

### Wet System With Excess Pressure

Connect PS10 into alarm port piping extending from alarm check valve. Retard provisions are not required. Insure that no unsupervised shut-off valves are present between the alarm check valve and the PS10.

Testing: Accomplished by opening the water by-pass test valve or the inspector's end-of-line test valve. When using end-of-line test, allow time for excess pressure to bleed off.

### Dry System

Connect PS10 into alarm port piping that extends from the intermediate chamber of the alarm check valve. Install on the outlet side of the in-line check valve of the alarm port piping. Insure that no unsupervised shut-off valves are present between the alarm check valve and the PS10.

Testing: Accomplished by opening the water by-pass test valve.

Note: The above tests may also activate any other circuit closer or water motor gongs that are present on the system.

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MADE IN USA

MFG. #5400928 - REV D-1  
12/10

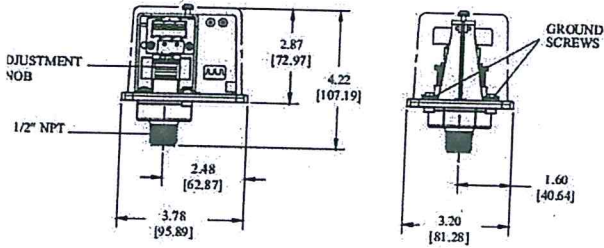
PAGE 1 OF 3



## PS10 SERIES PRESSURE SWITCH

Dimensions

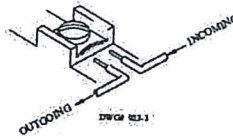
Fig. 1:



NOTE: To prevent leakage, apply Teflon tape sealant to male threads only.

DWG# 930-1

Switch Clamping Plate Terminal  
Fig. 2

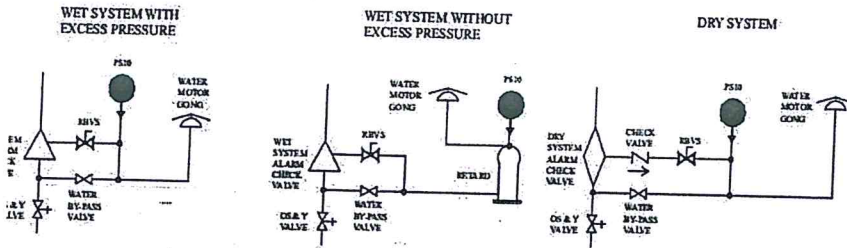


### WARNING

An uninsulated section of a single conductor should not be looped around the terminal and serve as two separate connections. The wire must be severed, thereby providing supervision of the connection in the event that the wire becomes dislodged from under the terminal.

Typical Sprinkler Applications

Fig. 3

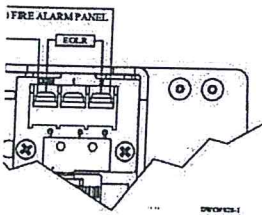


DWG #923-2A

### CAUTION

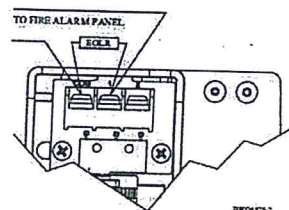
Closing of any shutoff valves between the alarm check valve and the PS10 will render the PS10 inoperative. To comply with NFPA-72 any such valve shall be electrically supervised with a supervisory switch such as Potter Model RBVS.

Pressure Signal Connection  
Fig. 4



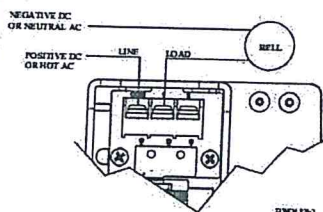
DWG# 930-1

Waterflow Signal Connection  
Fig. 5



DWG# 930-2

Local Bell For Waterflow Connection  
Fig. 6



DWG# 930-3

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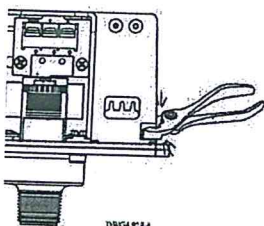




## PS10 SERIES PRESSURE SWITCH

### Conduit Wiring

7  
Cut out thin section of divider to provide path for wires in wiring both switches from one conduit entrance.



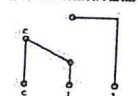
DWG#184

### Switch Operation

Fig. 8

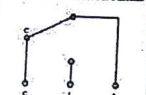
Terminal  
C: Common  
1: Closed when installed under normal system pressure.  
2: Open when installed under normal system pressure. Closes on pressure drop. Use for low pressure supervision.

W/ PRESSURE APPLIED



Terminal  
1: Open with no pressure applied. Closes upon detection of pressure. Use for waterflow indication.  
2: Closed with no pressure applied.

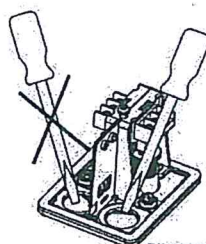
W/O PRESSURE APPLIED



DWG#184

### Removing Knockouts

Fig. 9



DWG#928-5

## WARNING

Installation must be performed by qualified personnel and in accordance with all national and local codes and ordinances. Shock hazard. Disconnect power source before servicing. Serious injury or death could result. Read all instructions carefully and understand them before wiring installation. Save instructions for future use. Failure to read and understand instructions could result in improper operation of device resulting in serious injury or death. Risk of explosion. Not for use in hazardous locations. Serious injury or death could result.

## CAUTION

- Do not tighten by grasping the switch enclosure. Use wrenching flats on the bushing only. Failure to install properly could damage the switch and cause improper operation resulting in damage to equipment and property.
- To seal threads, apply Teflon tape to male threads only. Using joint compounds or cement can obstruct the pressure port inlet and result in improper device operation and damage to equipment.
- Do not over tighten the device, standard piping practices apply.

### Manufacturer/Architect Specifications Pressure Type Waterflow Switch

Pressure type waterflow switches shall be a Model PS10 as manufactured by Potter Electric Signal Company, St. Louis MO. They shall be installed on the fire sprinkler system as shown and outlined herein. Switches shall be provided with a 1/2" NPT male pressure connection. They shall be connected to the alarm port outlet of: Wet Pipe Alarm Valves, Dry Pipe Valves, Pre-Action Valves, or Deluge Valves. The switch shall be actuated when the alarm line pressure reaches 17.5 PSI (0.27 - 0.55 BAR). Pressure type waterflow switches shall have a maximum service pressure rating of 300 PSI (20.68 BAR) and shall be factory adjusted to operate on a pressure increase of 4 - 8 PSI (0.27 - 0.55 BAR).

Pressure switch shall have one or two form C contacts, switch contact rating 10.1 Amps at 125/250 VAC, 2.0 Amps at 30 VDC.

Pressure type waterflow switches shall have two conduit entrances one for each individual switch compartment to facilitate the use of dissimilar voltages for each individual switch.

The cover of the pressure type waterflow switch shall be Zinc die-cast with rain lip and shall attach with one tamper resistant screw. The pressure type waterflow switch shall be suitable for indoor or outdoor service with a NEMA 4/IP66 rating.

The pressure type waterflow switch shall be UL Listed and CSFM listed, FM and LPC approved and NYMEA accepted.



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

### 12.03- Motor Datasheets



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 12.04- Electrical Cables Schedule



| ITEM | CABLE TAG  | CABLE COMPOSITION<br>mm <sup>2</sup> | SIGNAL TYPE | SHIELDING |        | ARM | FROM       | TO            | LENGTH<br>(m) | EXT. COLOUR<br>SHEATH | EXT. DIAM (mm) | GLAND TYPE<br>(NOTE-2) | DRUM NO.     | CABLE CODE | NOTE | Rev |
|------|------------|--------------------------------------|-------------|-----------|--------|-----|------------|---------------|---------------|-----------------------|----------------|------------------------|--------------|------------|------|-----|
|      |            |                                      |             | Overall   | Insul. |     |            |               |               |                       |                |                        |              |            |      |     |
| 6    | 00000002   | 1 X 3 X 2.5 mm <sup>2</sup>          | AI          |           | YES    | YES | 00000002   | 000A-IBR01    | 400           | RED                   | 17.53          | PA901-1400             | CD-000-F3-02 | F3         |      | 2   |
| 7    | 00000004   | 1 X 3 X 2.5 mm <sup>2</sup>          | AI          |           | YES    | YES | 00000004   | 000A-IBR01    | 910           | RED                   | 17.53          | PA901-1400             | CD-000-F3-03 | F3         |      | 2   |
| 8    | 00000004   | 1 X 3 X 2.5 mm <sup>2</sup>          | AI          |           | YES    | YES | 00000004   | 000A-IBR01    | 910           | RED                   | 17.53          | PA901-1400             | CD-000-F3-03 | F3         |      | 2   |
| 9    | 00000005   | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES | 00000005   | 000A-IBR01    | 20            | RED                   | 16             | PA901-1400             | CD-000-F3-01 | F3         |      | 2   |
| 10   | 00000006   | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES | 00000006   | 000A-IBR01    | 20            | RED                   | 16             | PA901-1400             | CD-000-F3-01 | F3         |      | 2   |
| 11   | 000A-IBR02 | 12 X 3 X 1.5 mm <sup>2</sup>         | ANALOG      | YES       | YES    | YES | 000A-IBR02 | 1440-IBR01    | 400           | RED                   | 41.4           | PA905-1400             | CD-000-F1-01 | F1         |      | 2   |
| 1    | 00000013   | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES | 00000013   | 000A-IBR02    | 130           | RED                   | 16             | PA901-1400             | CD-000-F3-01 | F3         |      | 2   |
| 2    | 00000015   | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES | 00000015   | 000A-IBR02    | 130           | RED                   | 16             | PA901-1400             | CD-000-F3-01 | F3         |      | 2   |
| 3    | 00000006   | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES | 00000006   | 000A-IBR02    | 80            | RED                   | 16             | PA901-1400             | CD-000-F3-01 | F3         |      | 2   |
| 4    | 00000009   | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES | 00000009   | 000A-IBR02    | 50            | RED                   | 16             | PA901-1400             | CD-000-F3-01 | F3         |      | 2   |
| 5    | 00000010   | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES | 00000010   | 000A-IBR02    | 40            | RED                   | 16             | PA901-1400             | CD-000-F3-01 | F3         |      | 2   |
| 6    | 00000007   | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES | 00000007   | 000A-IBR02    | 20            | RED                   | 16             | PA901-1400             | CD-000-F3-01 | F3         |      | 2   |
| 7    | 00000008   | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES | 00000008   | 000A-IBR02    | 20            | RED                   | 16             | PA901-1400             | CD-000-F3-01 | F3         |      | 2   |
| 8    | 00000007   | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES | 00000007   | 000A-IBR02    | 80            | RED                   | 16             | PA901-1400             | CD-000-F3-01 | F3         |      | 2   |
| 9    | 00000005   | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES | 00000005   | 000A-IBR02    | 90            | RED                   | 16             | PA901-1400             | CD-000-F3-01 | F3         |      | 2   |
| 12   | 000A-IBR02 | 12 X 3 X 1.5 mm <sup>2</sup>         | ANALOG      | YES       | YES    | YES | 000A-IBR02 | 1440-IBR01    | 400           | RED                   | 41.4           | PA905-1400             | CD-000-F1-02 | F1         |      | 2   |
| 1    | 00000010   | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES | 00000010   | 000A-IBR03    | 80            | RED                   | 16             | PA901-1400             | CD-000-F3-01 | F3         |      | 2   |
| 2    | 00000011   | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES | 00000011   | 000A-IBR03    | 120           | RED                   | 16             | PA901-1400             | CD-000-F3-01 | F3         |      | 2   |
| 3    | 00000008   | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES | 00000008   | 000A-IBR03    | 30            | RED                   | 16             | PA901-1400             | CD-000-F3-01 | F3         |      | 2   |
| 4    | 00000013   | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES | 00000013   | 000A-IBR03    | 90            | RED                   | 16             | PA901-1400             | CD-000-F3-01 | F3         |      | 2   |
| 5    | 00000014   | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES | 00000014   | 000A-IBR03    | 110           | RED                   | 16             | PA901-1400             | CD-000-F3-01 | F3         |      | 2   |
| 6    | 00000011   | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES | 00000011   | 000A-IBR03    | 20            | RED                   | 16             | PA901-1400             | CD-000-F3-01 | F3         |      | 2   |
| 7    | 00000012   | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES | 00000012   | 000A-IBR03    | 70            | RED                   | 16             | PA901-1400             | CD-000-F3-01 | F3         |      | 2   |
| 8    | 00000012   | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES | 00000012   | 000A-IBR03    | 120           | RED                   | 16             | PA901-1400             | CD-000-F3-01 | F3         |      | 2   |
| 9    | 00000009   | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES | 00000009   | 000A-IBR03    | 50            | RED                   | 16             | PA901-1400             | CD-000-F3-01 | F3         |      | 2   |
| 14   | 00000016   | 4 X 2 X 1.5 mm <sup>2</sup>          | DIGITAL     | YES       | NO     | YES | 00000016   | 1440-IBR01    | 220           | RED                   | 23.2           | PA902-1400             | CD-000-F2-01 | F2         |      | 2   |
| 15   | 00000016   | 4 X 2 X 1.5 mm <sup>2</sup>          | DIGITAL     | YES       | NO     | YES | 00000016   | 1440-IBR01    | 220           | RED                   | 23.2           | PA902-1400             | CD-000-F2-01 | F2         |      | 2   |
| 16   | 00000015   | 8 X 2 X 1.5 mm <sup>2</sup>          | DIGITAL     | YES       | NO     | YES | 00000015   | 1440-IBR01    | 240           | RED                   | 23.2           | PA902-1400             | CD-000-F2-01 | F2         |      | 2   |
| 17   | 00000015   | 8 X 2 X 1.5 mm <sup>2</sup>          | DIGITAL     | YES       | NO     | YES | 00000015   | 1440-IBR01    | 250           | RED                   | 23.2           | PA902-1400             | CD-000-F2-01 | F2         |      | 2   |
| 18   | 00000015   | 8 X 2 X 1.5 mm <sup>2</sup>          | DIGITAL     | YES       | NO     | YES | 00000015   | 1440-IBR01    | 250           | RED                   | 23.2           | PA902-1400             | CD-000-F2-01 | F2         |      | 2   |
| 19   | 00000015   | 8 X 2 X 1.5 mm <sup>2</sup>          | DIGITAL     | YES       | NO     | YES | 00000015   | 1440-IBR01    | 250           | RED                   | 23.2           | PA902-1400             | CD-000-F2-01 | F2         |      | 2   |
| 20   | 00000015   | 12 X 2 X 1.5 mm <sup>2</sup>         | DIGITAL     | YES       | NO     | YES | 00000015   | 1440-IBR01    | 400           | RED                   | 33.5           | PA902-1400             | CD-000-F2-01 | F2         |      | 2   |
| 21   | 00000015   | 12 X 2 X 1.5 mm <sup>2</sup>         | DIGITAL     | YES       | NO     | YES | 00000015   | 1440-IBR01    | 700           | RED                   | 33.5           | PA902-1400             | CD-000-F2-01 | F2         |      | 2   |
| 22   | 00000015   | 12 X 2 X 1.5 mm <sup>2</sup>         | DIGITAL     | YES       | NO     | YES | 00000015   | 1440-IBR01    | 900           | RED                   | 33.5           | PA902-1400             | CD-000-F2-01 | F2         |      | 2   |
| 23   | 00000015   | 12 X 2 X 1.5 mm <sup>2</sup>         | DIGITAL     | YES       | NO     | YES | 00000015   | 1440-IBR01    | 900           | RED                   | 33.5           | PA902-1400             | CD-000-F2-01 | F2         |      | 2   |
| 24   | 00000015   | 1 X 3 X 1.5 mm <sup>2</sup>          | DIGITAL     | NO        | NO     | NO  | 00000015   | INPUT DEVICES | 1000          | RED                   | 11.81          | PA903-1400             | CD-000-F2-01 | F2         |      | 2   |
| 25   | 00000015   | 1 X 3 X 1.5 mm <sup>2</sup>          | DIGITAL     | NO        | NO     | NO  | 00000015   | INPUT DEVICES | 1000          | RED                   | 11.81          | PA903-1400             | CD-000-F2-01 | F2         |      | 2   |
| 26   | 00000015   | 1 X 3 X 1.5 mm <sup>2</sup>          | DIGITAL     | NO        | NO     | NO  | 00000015   | INPUT DEVICES | 1000          | RED                   | 11.81          | PA903-1400             | CD-000-F2-01 | F2         |      | 2   |
| 27   | 00000015   | 1 X 3 X 1.5 mm <sup>2</sup>          | DIGITAL     | NO        | NO     | NO  | 00000015   | INPUT DEVICES | 1000          | RED                   | 11.81          | PA903-1400             | CD-000-F2-01 | F2         |      | 2   |
| 28   | 00000015   | 1 X 3 X 1.5 mm <sup>2</sup>          | DIGITAL     | NO        | NO     | NO  | 00000015   | INPUT DEVICES | 1000          | RED                   | 11.81          | PA903-1400             | CD-000-F2-01 | F2         |      | 2   |
| 29   | 00000015   | 1 X 3 X 1.5 mm <sup>2</sup>          | DIGITAL     | NO        | NO     | NO  | 00000015   | INPUT DEVICES | 1000          | RED                   | 11.81          | PA903-1400             | CD-000-F2-01 | F2         |      | 2   |
| 30   | 00000015   | 1 X 3 X 1.5 mm <sup>2</sup>          | DIGITAL     | NO        | NO     | NO  | 00000015   | INPUT DEVICES | 1000          | RED                   | 11.81          | PA903-1400             | CD-000-F2-01 | F2         |      | 2   |
| 31   | 00000015   | 1 X 3 X 1.5 mm <sup>2</sup>          | DIGITAL     | NO        | NO     | NO  | 00000015   | INPUT DEVICES | 1000          | RED                   | 11.81          | PA903-1400             | CD-000-F2-01 | F2         |      | 2   |
| 32   | 00000015   | 1 X 3 X 1.5 mm <sup>2</sup>          | DIGITAL     | NO        | NO     | NO  | 00000015   | INPUT DEVICES | 1000          | RED                   | 11.81          | PA903-1400             | CD-000-F2-01 | F2         |      | 2   |
| 33   | 00000015   | 1 X 3 X 1.5 mm <sup>2</sup>          | DIGITAL     | NO        | NO     | NO  | 00000015   | INPUT DEVICES | 1000          | RED                   | 11.81          | PA903-1400             | CD-000-F2-01 | F2         |      | 2   |
| 34   | 00000015   | 1 X 3 X 1.5 mm <sup>2</sup>          | DIGITAL     | NO        | NO     | NO  | 00000015   | INPUT DEVICES | 1000          | RED                   | 11.81          | PA903-1400             | CD-000-F2-01 | F2         |      | 2   |
| 35   | 00000015   | 1 X 3 X 1.5 mm <sup>2</sup>          | DIGITAL     | NO        | NO     | NO  | 00000015   | INPUT DEVICES | 1000          | RED                   | 11.81          | PA903-1400             | CD-000-F2-01 | F2         |      | 2   |
| 36   | 00000015   | 1 X 3 X 1.5 mm <sup>2</sup>          | DIGITAL     | NO        | NO     | NO  | 00000015   | INPUT DEVICES | 1000          | RED                   | 11.81          | PA903-1400             | CD-000-F2-01 | F2         |      | 2   |
| 37   | 00000015   | 1 X 3 X 1.5 mm <sup>2</sup>          | DIGITAL     | NO        | NO     | NO  | 00000015   | INPUT DEVICES | 1000          | RED                   | 11.81          | PA903-1400             | CD-000-F2-01 | F2         |      | 2   |
| 38   | 00000015   | 1 X 3 X 1.5 mm <sup>2</sup>          | DIGITAL     | NO        | NO     | NO  | 00000015   | INPUT DEVICES | 1000          | RED                   | 11.81          | PA903-1400             | CD-000-F2-01 | F2         |      | 2   |
| 39   | 00000015   | 1 X 3 X 1.5 mm <sup>2</sup>          | DIGITAL     | NO        | NO     | NO  | 00000015   | INPUT DEVICES | 1000          | RED                   | 11.81          | PA903-1400             | CD-000-F2-01 | F2         |      | 2   |
| 40   | 00000015   | 1 X 3 X 1.5 mm <sup>2</sup>          | DIGITAL     | NO        | NO     | NO  | 00000015   | INPUT DEVICES | 1000          | RED                   | 11.81          | PA903-1400             | CD-000-F2-01 | F2         |      | 2   |
| 41   | 00000015   | 1 X 3 X 1.5 mm <sup>2</sup>          | DIGITAL     | NO        | NO     | NO  | 00000015   | INPUT DEVICES | 1000          | RED                   | 11.81          | PA903-1400             | CD-000-F2-01 | F2         |      | 2   |
| 42   | 00000015   | 1 X 3 X 1.5 mm <sup>2</sup>          | DIGITAL     | NO        | NO     | NO  | 00000015   | INPUT DEVICES | 1000          | RED                   | 11.81          | PA903-1400             | CD-000-F2-01 | F2         |      | 2   |
| 43   | 00000015   | 1 X 3 X 1.5 mm <sup>2</sup>          | DIGITAL     | NO        | NO     | NO  | 00000015   | INPUT DEVICES | 1000          | RED                   | 11.81          | PA903-1400             | CD-000-F2-01 | F2         |      | 2   |
| 44   | 00000015   | 1 X 3 X 1.5 mm <sup>2</sup>          | DIGITAL     | NO        | NO     | NO  | 00000015   | INPUT DEVICES | 1000          | RED                   | 11.81          | PA903-1400             | CD-000-F2-01 | F2         |      | 2   |
| 45   | 00000015   | 1 X 3 X 1.5 mm <sup>2</sup>          | DIGITAL     | NO        | NO     | NO  | 00000015   | INPUT DEVICES | 1000          | RED                   | 11.81          | PA903-1400             | CD-000-F2-01 | F2         |      | 2   |
| 46   | 00000015   | 1 X 3 X 1.5 mm <sup>2</sup>          | DIGITAL     | NO        | NO     | NO  | 00000015   | INPUT DEVICES | 1000          | RED                   | 11.81          | PA903-1400             | CD-000-F2-01 | F2         |      | 2   |







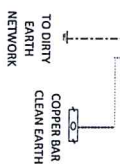
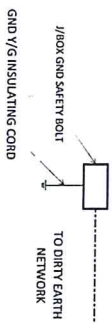
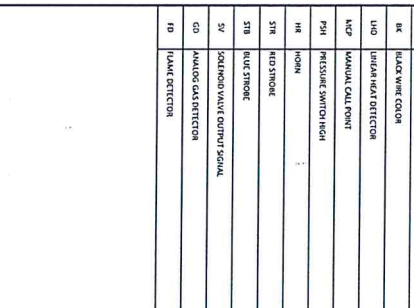
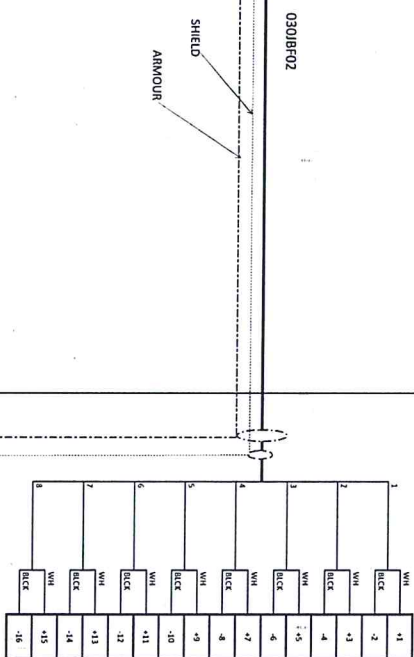
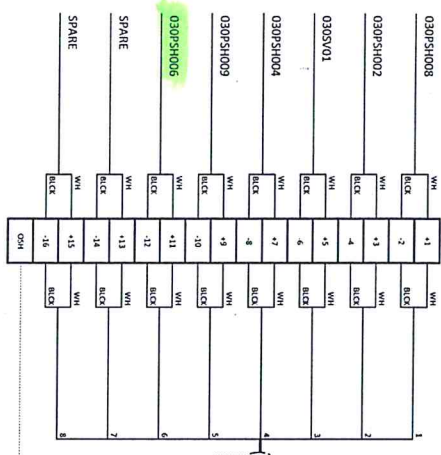
| ITEM | CABLE TAG | CABLE COMPOSITION<br>mm <sup>2</sup> | SIGNAL TYPE | SHIELDING |        | ARM. | FROM     | TO       | LENGTH<br>(m) | EXT COLOUR<br>SHEATH | EXT. DMM (mm) | GLAND TYPE<br>(MOT-2) | DRUM NO.    | CABLE CODE | NOTE | Rev |
|------|-----------|--------------------------------------|-------------|-----------|--------|------|----------|----------|---------------|----------------------|---------------|-----------------------|-------------|------------|------|-----|
|      |           |                                      |             | Overall   | Indiv. |      |          |          |               |                      |               |                       |             |            |      |     |
| 6    | 00000002  | 1 X 3 X 2.5 mm <sup>2</sup>          | AI          |           | YES    | YES  | 00000002 | 00000001 | 420           | RED                  | 17.53         | PA/P001-M20           | CD-000-F-02 | F8         |      | 2   |
| 7    | 00000004  | 1 X 3 X 2.5 mm <sup>2</sup>          | AI          |           | YES    | YES  | 00000004 | 00000001 | 910           | RED                  | 17.53         | PA/P001-M20           | CD-000-F-03 | F8         |      | 2   |
| 8    | 00000004  | 1 X 3 X 2.5 mm <sup>2</sup>          | AI          |           | YES    | YES  | 00000004 | 00000001 | 910           | RED                  | 17.53         | PA/P001-M20           | CD-000-F-03 | F8         |      | 2   |
| 9    | 00000006  | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES  | 00000006 | 00000001 | 20            | RED                  | 16            | PA/P001-M20           | CD-000-F-01 | F5         |      | 2   |
| 10   | 00000006  | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES  | 00000006 | 00000001 | 20            | RED                  | 16            | PA/P001-M20           | CD-000-F-01 | F5         |      | 2   |
| 11   | 00000007  | 12 X 3 X 1.5 mm <sup>2</sup>         | ANALOG      | YES       | YES    | YES  | 00000007 | 00000002 | 400           | RED                  | 41.4          | PA/P001-M20           | CD-000-F-01 | F1         |      | 2   |
| 1    | 00000013  | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES  | 00000013 | 00000002 | 130           | RED                  | 16            | PA/P001-M20           | CD-000-F-01 | F3         |      | 2   |
| 2    | 00000015  | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES  | 00000015 | 00000002 | 130           | RED                  | 16            | PA/P001-M20           | CD-000-F-01 | F3         |      | 2   |
| 3    | 00000006  | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES  | 00000006 | 00000002 | 80            | RED                  | 16            | PA/P001-M20           | CD-000-F-01 | F3         |      | 2   |
| 4    | 00000009  | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES  | 00000009 | 00000002 | 50            | RED                  | 16            | PA/P001-M20           | CD-000-F-01 | F3         |      | 2   |
| 5    | 00000010  | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES  | 00000010 | 00000002 | 40            | RED                  | 16            | PA/P001-M20           | CD-000-F-01 | F3         |      | 2   |
| 6    | 00000007  | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES  | 00000007 | 00000002 | 40            | RED                  | 16            | PA/P001-M20           | CD-000-F-01 | F3         |      | 2   |
| 7    | 00000008  | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES  | 00000008 | 00000002 | 20            | RED                  | 16            | PA/P001-M20           | CD-000-F-01 | F3         |      | 2   |
| 8    | 00000007  | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES  | 00000007 | 00000002 | 80            | RED                  | 16            | PA/P001-M20           | CD-000-F-01 | F3         |      | 2   |
| 9    | 00000005  | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES  | 00000005 | 00000002 | 80            | RED                  | 16            | PA/P001-M20           | CD-000-F-01 | F3         |      | 2   |
| 12   | 00000009  | 12 X 3 X 1.5 mm <sup>2</sup>         | ANALOG      | YES       | YES    | YES  | 00000009 | 00000002 | 400           | RED                  | 41.4          | PA/P001-M20           | CD-000-F-01 | F1         |      | 2   |
| 1    | 00000010  | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES  | 00000010 | 00000003 | 60            | RED                  | 16            | PA/P001-M20           | CD-000-F-01 | F3         |      | 2   |
| 2    | 00000011  | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES  | 00000011 | 00000003 | 70            | RED                  | 16            | PA/P001-M20           | CD-000-F-01 | F3         |      | 2   |
| 3    | 00000009  | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES  | 00000009 | 00000003 | 30            | RED                  | 16            | PA/P001-M20           | CD-000-F-01 | F3         |      | 2   |
| 4    | 00000013  | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES  | 00000013 | 00000003 | 30            | RED                  | 16            | PA/P001-M20           | CD-000-F-01 | F3         |      | 2   |
| 5    | 00000014  | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES  | 00000014 | 00000003 | 110           | RED                  | 16            | PA/P001-M20           | CD-000-F-01 | F3         |      | 2   |
| 6    | 00000011  | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES  | 00000011 | 00000003 | 20            | RED                  | 16            | PA/P001-M20           | CD-000-F-01 | F3         |      | 2   |
| 7    | 00000012  | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES  | 00000012 | 00000003 | 70            | RED                  | 16            | PA/P001-M20           | CD-000-F-01 | F3         |      | 2   |
| 8    | 00000002  | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES  | 00000002 | 00000003 | 120           | RED                  | 16            | PA/P001-M20           | CD-000-F-01 | F3         |      | 2   |
| 9    | 00000009  | 1 X 3 X 1.5 mm <sup>2</sup>          | AI          |           | YES    | YES  | 00000009 | 00000003 | 50            | RED                  | 16            | PA/P001-M20           | CD-000-F-01 | F3         |      | 2   |
| 14   | 00000004  | 4 X 2 X 1.5 mm <sup>2</sup>          | DIGITAL     | YES       | NO     | YES  | 00000004 | 00000003 | 220           | RED                  | 23.2          | PA/P001-M20           | CD-000-F-01 | F7         |      | 2   |
| 15   | 00000008  | 4 X 2 X 1.5 mm <sup>2</sup>          | DIGITAL     | YES       | NO     | YES  | 00000008 | 00000003 | 220           | RED                  | 23.2          | PA/P001-M20           | CD-000-F-01 | F7         |      | 2   |
| 16   | 00000015  | 8 X 2 X 1.5 mm <sup>2</sup>          | DIGITAL     | YES       | NO     | YES  | 00000015 | 00000003 | 240           | RED                  | 23.2          | PA/P001-M20           | CD-000-F-01 | F7         |      | 2   |
| 17   | 00000015  | 8 X 2 X 1.5 mm <sup>2</sup>          | DIGITAL     | YES       | NO     | YES  | 00000015 | 00000003 | 240           | RED                  | 23.2          | PA/P001-M20           | CD-000-F-01 | F7         |      | 2   |
| 18   | 00000015  | 8 X 2 X 1.5 mm <sup>2</sup>          | DIGITAL     | YES       | NO     | YES  | 00000015 | 00000003 | 240           | RED                  | 23.2          | PA/P001-M20           | CD-000-F-01 | F7         |      | 2   |
| 19   | 00000001  | 12 X 2 X 1.5 mm <sup>2</sup>         | DIGITAL     | YES       | NO     | YES  | 00000001 | 00000003 | 280           | RED                  | 29.2          | PA/P001-M20           | CD-000-F-01 | F7         |      | 2   |
| 20   | 00000002  | 12 X 2 X 1.5 mm <sup>2</sup>         | DIGITAL     | YES       | NO     | YES  | 00000002 | 00000003 | 470           | RED                  | 33.5          | PA/P001-M20           | CD-000-F-01 | F7         |      | 2   |
| 21   | 00000002  | 12 X 2 X 1.5 mm <sup>2</sup>         | DIGITAL     | YES       | NO     | YES  | 00000002 | 00000003 | 660           | RED                  | 33.5          | PA/P001-M20           | CD-000-F-01 | F7         |      | 2   |
| 22   | 00000004  | 12 X 2 X 1.5 mm <sup>2</sup>         | DIGITAL     | YES       | NO     | YES  | 00000004 | 00000003 | 700           | RED                  | 33.5          | PA/P001-M20           | CD-000-F-01 | F7         |      | 2   |
| 23   | 00000001  | 12 X 2 X 1.5 mm <sup>2</sup>         | DIGITAL     | YES       | NO     | YES  | 00000001 | 00000003 | 960           | RED                  | 33.5          | PA/P001-M20           | CD-000-F-01 | F7         |      | 2   |
| 24   | 00000001  | 12 X 2 X 1.5 mm <sup>2</sup>         | DIGITAL     | YES       | NO     | YES  | 00000001 | 00000003 | 1000          | RED                  | 33.5          | PA/P001-M20           | CD-000-F-01 | F7         |      | 2   |
| 25   | 00000001  | 12 X 2 X 1.5 mm <sup>2</sup>         | DIGITAL     | YES       | NO     | YES  | 00000001 | 00000003 | 1000          | RED                  | 33.5          | PA/P001-M20           | CD-000-F-01 | F7         |      | 2   |
| 26   | 00000001  | 12 X 2 X 1.5 mm <sup>2</sup>         | DIGITAL     | YES       | NO     | YES  | 00000001 | 00000003 | 1000          | RED                  | 33.5          | PA/P001-M20           | CD-000-F-01 | F7         |      | 2   |
| 27   | 00000001  | 12 X 2 X 1.5 mm <sup>2</sup>         | DIGITAL     | YES       | NO     | YES  | 00000001 | 00000003 | 1000          | RED                  | 33.5          | PA/P001-M20           | CD-000-F-01 | F7         |      | 2   |
| 28   | 00000001  | 12 X 2 X 1.5 mm <sup>2</sup>         | DIGITAL     | YES       | NO     | YES  | 00000001 | 00000003 | 1000          | RED                  | 33.5          | PA/P001-M20           | CD-000-F-01 | F7         |      | 2   |
| 29   | 00000001  | 12 X 2 X 1.5 mm <sup>2</sup>         | DIGITAL     | YES       | NO     | YES  | 00000001 | 00000003 | 1000          | RED                  | 33.5          | PA/P001-M20           | CD-000-F-01 | F7         |      | 2   |
| 30   | 00000001  | 12 X 2 X 1.5 mm <sup>2</sup>         | DIGITAL     | YES       | NO     | YES  | 00000001 | 00000003 | 1000          | RED                  | 33.5          | PA/P001-M20           | CD-000-F-01 | F7         |      | 2   |
| 31   | 00000001  | 12 X 2 X 1.5 mm <sup>2</sup>         | DIGITAL     | YES       | NO     | YES  | 00000001 | 00000003 | 1000          | RED                  | 33.5          | PA/P001-M20           | CD-000-F-01 | F7         |      | 2   |
| 32   | 00000001  | 12 X 2 X 1.5 mm <sup>2</sup>         | DIGITAL     | YES       | NO     | YES  | 00000001 | 00000003 | 1000          | RED                  | 33.5          | PA/P001-M20           | CD-000-F-01 | F7         |      | 2   |
| 33   | 00000001  | 12 X 2 X 1.5 mm <sup>2</sup>         | DIGITAL     | YES       | NO     | YES  | 00000001 | 00000003 | 1000          | RED                  | 33.5          | PA/P001-M20           | CD-000-F-01 | F7         |      | 2   |
| 34   | 00000001  | 12 X 2 X 1.5 mm <sup>2</sup>         | DIGITAL     | YES       | NO     | YES  | 00000001 | 00000003 | 1000          | RED                  | 33.5          | PA/P001-M20           | CD-000-F-01 | F7         |      | 2   |
| 35   | 00000001  | 12 X 2 X 1.5 mm <sup>2</sup>         | DIGITAL     | YES       | NO     | YES  | 00000001 | 00000003 | 1000          | RED                  | 33.5          | PA/P001-M20           | CD-000-F-01 | F7         |      | 2   |
| 36   | 00000001  | 12 X 2 X 1.5 mm <sup>2</sup>         | DIGITAL     | YES       | NO     | YES  | 00000001 | 00000003 | 1000          | RED                  | 33.5          | PA/P001-M20           | CD-000-F-01 | F7         |      | 2   |
| 37   | 00000001  | 12 X 2 X 1.5 mm <sup>2</sup>         | DIGITAL     | YES       | NO     | YES  | 00000001 | 00000003 | 1000          | RED                  | 33.5          | PA/P001-M20           | CD-000-F-01 | F7         |      | 2   |
| 38   | 00000001  | 12 X 2 X 1.5 mm <sup>2</sup>         | DIGITAL     | YES       | NO     | YES  | 00000001 | 00000003 | 1000          | RED                  | 33.5          | PA/P001-M20           | CD-000-F-01 | F7         |      | 2   |
| 39   | 00000001  | 12 X 2 X 1.5 mm <sup>2</sup>         | DIGITAL     | YES       | NO     | YES  | 00000001 | 00000003 | 1000          | RED                  | 33.5          | PA/P001-M20           | CD-000-F-01 | F7         |      | 2   |
| 40   | 00000001  | 12 X 2 X 1.5 mm <sup>2</sup>         | DIGITAL     | YES       | NO     | YES  | 00000001 | 00000003 | 1000          | RED                  | 33.5          | PA/P001-M20           | CD-000-F-01 | F7         |      | 2   |
| 41   | 00000001  | 12 X 2 X 1.5 mm <sup>2</sup>         | DIGITAL     | YES       | NO     | YES  | 00000001 | 00000003 | 1000          | RED                  | 33.5          | PA/P001-M20           | CD-000-F-01 | F7         |      | 2   |
| 42   | 00000001  | 12 X 2 X 1.5 mm <sup>2</sup>         | DIGITAL     | YES       | NO     | YES  | 00000001 | 00000003 | 1000          | RED                  | 33.5          | PA/P001-M20           | CD-000-F-01 | F7         |      | 2   |
| 43   | 00000001  | 12 X 2 X 1.5 mm <sup>2</sup>         | DIGITAL     | YES       | NO     | YES  | 00000001 | 00000003 | 1000          | RED                  | 33.5          | PA/P001-M20           | CD-000-F-01 | F7         |      | 2   |
| 44   | 00000001  | 12 X 2 X 1.5 mm <sup>2</sup>         | DIGITAL     | YES       | NO     | YES  | 00000001 | 00000003 | 1000          | RED                  | 33.5          | PA/P001-M20           | CD-000-F-01 | F7         |      | 2   |
| 45   | 00000001  | 12 X 2 X 1.5 mm <sup>2</sup>         | DIGITAL     | YES       | NO     | YES  | 00000001 | 00000003 | 1000          | RED                  | 33.5          | PA/P001-M20           | CD-000-F-01 | F7         |      | 2   |
| 46   | 00000001  | 12 X 2 X 1.5 mm <sup>2</sup>         | DIGITAL     | YES       | NO     | YES  | 00000001 | 00000003 | 1000          | RED                  | 33.5          | PA/P001-M20           | CD-000-F-01 | F7         |      | 2   |

|                     |          |                          |       |
|---------------------|----------|--------------------------|-------|
| TERMINAL STRIP :    | 0        | SIGNAL TYPE :            | DY/D0 |
| AREA DESCRIPTION :  | 0        |                          |       |
| INJECTION BOX TAG : | 030IBPO2 | INDIVIDUAL CABLES CODE : | F3/F4 |

|                    |                             |
|--------------------|-----------------------------|
| MULTI CABLE TAG :  | 03010R02                    |
| MULTI CABLE SIZE : | 8 X 2 X 1.5 mm <sup>2</sup> |
| MULTI CABLE CODE : | F8                          |

|                      |                      |
|----------------------|----------------------|
| FBG PANEL LOCATION : | SUBSTRATION BUILDING |
| V/Os CABINET No. :   | FGS-MC-01            |
| TERMINAL STRIP :     | Q30IBFQ2             |

|                                                 |
|-------------------------------------------------|
| INTERCONNECTING WIRING DIAGRAM FOR JUNCTION BOX |
| 0301BFO2                                        |



NOTICE

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Empire

ENGINEERING FOR THE PETROLEUM AND PROCESS INDUSTRIES

EGPC

CRUDE OIL TANK FARM

FIRE AND GAS INTERCONNECTING WIRING DIAGRAM

DRAWING NUMBER:

01251-100-0104W/D-001

|   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 | 101 | 102 | 103 | 104 | 105 | 106 | 107 | 108 | 109 | 110 | 111 | 112 | 113 | 114 | 115 | 116 | 117 | 118 | 119 | 120 | 121 | 122 | 123 | 124 | 125 | 126 | 127 | 128 | 129 | 130 | 131 | 132 | 133 | 134 | 135 | 136 | 137 | 138 | 139 | 140 | 141 | 142 | 143 | 144 | 145 | 146 | 147 | 148 | 149 | 150 | 151 | 152 | 153 | 154 | 155 | 156 | 157 | 158 | 159 | 160 | 161 | 162 | 163 | 164 | 165 | 166 | 167 | 168 | 169 | 170 | 171 | 172 | 173 | 174 | 175 | 176 | 177 | 178 | 179 | 180 | 181 | 182 | 183 | 184 | 185 | 186 | 187 | 188 | 189 | 190 | 191 | 192 | 193 | 194 | 195 | 196 | 197 | 198 | 199 | 200 | 201 | 202 | 203 | 204 | 205 | 206 | 207 | 208 | 209 | 210 | 211 | 212 | 213 | 214 | 215 | 216 | 217 | 218 | 219 | 220 | 221 | 222 | 223 | 224 | 225 | 226 | 227 | 228 | 229 | 230 | 231 | 232 | 233 | 234 | 235 | 236 | 237 | 238 | 239 | 240 | 241 | 242 | 243 | 244 | 245 | 246 | 247 | 248 | 249 | 250 | 251 | 252 | 253 | 254 | 255 | 256 | 257 | 258 | 259 | 260 | 261 | 262 | 263 | 264 | 265 | 266 | 267 | 268 | 269 | 270 | 271 | 272 | 273 | 274 | 275 | 276 | 277 | 278 | 279 | 280 | 281 | 282 | 283 | 284 | 285 | 286 | 287 | 288 | 289 | 290 | 291 | 292 | 293 | 294 | 295 | 296 | 297 | 298 | 299 | 300 | 301 | 302 | 303 | 304 | 305 | 306 | 307 | 308 | 309 | 310 | 311 | 312 | 313 | 314 | 315 | 316 | 317 | 318 | 319 | 320 | 321 | 322 | 323 | 324 | 325 | 326 | 327 | 328 | 329 | 330 | 331 | 332 | 333 | 334 | 335 | 336 | 337 | 338 | 339 | 340 | 341 | 342 | 343 | 344 | 345 | 346 | 347 | 348 | 349 | 350 | 351 | 352 | 353 | 354 | 355 | 356 | 357 | 358 | 359 | 360 | 361 | 362 | 363 | 364 | 365 | 366 | 367 | 368 | 369 | 370 | 371 | 372 | 373 | 374 | 375 | 376 | 377 | 378 | 379 | 380 | 381 | 382 | 383 | 384 | 385 | 386 | 387 | 388 | 389 | 390 | 391 | 392 | 393 | 394 | 395 | 396 | 397 | 398 | 399 | 400 | 401 | 402 | 403 | 404 | 405 | 406 | 407 | 408 | 409 | 410 | 411 | 412 | 413 | 414 | 415 | 416 | 417 | 418 | 419 | 420 | 421 | 422 | 423 | 424 | 425 | 426 | 427 | 428 | 429 | 430 | 431 | 432 | 433 | 434 | 435 | 436 | 437 | 438 | 439 | 440 | 441 | 442 | 443 | 444 | 445 | 446 | 447 | 448 | 449 | 450 | 451 | 452 | 453 | 454 | 455 | 456 | 457 | 458 | 459 | 460 | 461 | 462 | 463 | 464 | 465 | 466 |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

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Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 12.05- Electrical Cables Laying Certificates













Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 12.06- Electrical Cables Testing Certificates



EGPC CRUDE OIL TANK FARM



INSPECTION AND TEST REPORT FOR

## CABLE INSULATION RESISTANCE TEST

INSPECTION REPORT NUMBER

REF:

INSTRUMENT TYPE:

INSPECTION DATE &amp; TIME

SERIAL:

SERVICE VOLTAGE:

DOCUMENT No

ITR-EL-0006A

TEST VOLTAGE:

SYSTEM NO.:

SHEET NO

AREA / PACKAGE:

| N<br>O | Item/Tag NO. | CABLE<br>SIZE | Continuity<br>Test | PHASE TO<br>NEUTRAL "M.Ohm" |       |       | PHASES & NEUTRAL TO ARMOR<br>"M.Ohm" |      |      | RESULT |        |        |       |      |      |
|--------|--------------|---------------|--------------------|-----------------------------|-------|-------|--------------------------------------|------|------|--------|--------|--------|-------|------|------|
|        |              |               |                    | BR-BK                       | BR-GR | BK-GR | BR-B                                 | BK-B | GR-B | BR-ARM | BK-ARM | GR-ARM | B-ARM | Pass | FAIL |
| 1      | 030-GID-003  | 1x3x2.5       | ✓                  |                             | 500V  |       |                                      |      |      |        | 7      | 500 MΩ |       | ✓    |      |
| 2      |              |               |                    |                             |       |       |                                      |      |      |        |        |        |       |      |      |
| 3      |              |               |                    |                             |       |       |                                      |      |      |        |        |        |       |      |      |
| 4      |              |               |                    |                             |       |       |                                      |      |      |        |        |        |       |      |      |
| 5      |              |               |                    |                             |       |       |                                      |      |      |        |        |        |       |      |      |
| 6      |              |               |                    |                             |       |       |                                      |      |      |        |        |        |       |      |      |
| 7      |              |               |                    |                             |       |       |                                      |      |      |        |        |        |       |      |      |
| 8      |              |               |                    |                             |       |       |                                      |      |      |        |        |        |       |      |      |
| 9      |              |               |                    |                             |       |       |                                      |      |      |        |        |        |       |      |      |
| 10     |              |               |                    |                             |       |       |                                      |      |      |        |        |        |       |      |      |
| 11     |              |               |                    |                             |       |       |                                      |      |      |        |        |        |       |      |      |
| 12     |              |               |                    |                             |       |       |                                      |      |      |        |        |        |       |      |      |
| 13     |              |               |                    |                             |       |       |                                      |      |      |        |        |        |       |      |      |
| 14     |              |               |                    |                             |       |       |                                      |      |      |        |        |        |       |      |      |
| 15     |              |               |                    |                             |       |       |                                      |      |      |        |        |        |       |      |      |
| 16     |              |               |                    |                             |       |       |                                      |      |      |        |        |        |       |      |      |
| 17     |              |               |                    |                             |       |       |                                      |      |      |        |        |        |       |      |      |
| 18     |              |               |                    |                             |       |       |                                      |      |      |        |        |        |       |      |      |

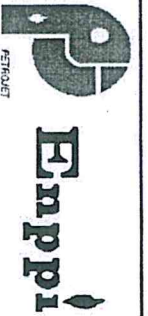
Remarks :-

Reference :-

|           |              |       |     |
|-----------|--------------|-------|-----|
|           | PETROJET     | ENPPI | PMC |
| NAME :    | Ahmed Hassan |       |     |
| SIGNATURE |              |       |     |
| DATE      | 28/8/2021    |       |     |

ITR-EL-0006A





EGPC CRUDE OIL TANK FARM



INSPECTION AND TEST REPORT FOR

CABLE INSULATION RESISTANCE TEST

SYSTEM NO.:

INSPECTION REPORT NUMBER

INSPECTION DATE & TIME

DOCUMENT NO.

DISCIPLINE

SHEET NO

PTJ-INST-RI-063

INSTRUMENT TYPE:

SERIAL:

SERVICE VOLTAGE:

TEST VOLTAGE:

AREA / PACKAGE:

FLUKE 1507 INSULATION TESTER

46240215WS

24

500

| NO | Item/Tag NO.  | CABLE SIZE | Continuity Test | pair conductors | conductors to armor | Shield to Shield | All Conductors - GND | Overall Shield - GND | Armor - GND | RESULT |
|----|---------------|------------|-----------------|-----------------|---------------------|------------------|----------------------|----------------------|-------------|--------|
| 1  | 030-JBF-006   | 8X2X2.5    | ✓               | 0.L             |                     |                  |                      |                      |             | Pass   |
| 2  | 030-JBF-007   | 8X2X2.5    | ✓               | 0.L             |                     |                  |                      |                      |             | ✓      |
| 3  | 030-LHD-005   | 1X2X1.5    | ✓               | 0.L             |                     |                  |                      |                      |             | ✓      |
| 4  | 030-LHD-006   | 1X2X1.5    | ✓               | 0.L             |                     |                  |                      |                      |             | ✓      |
| 5  | 030-PSH-005 A | 1X2X1.5    | ✓               | 0.L             |                     |                  |                      |                      |             | ✓      |
| 6  | 030-PSH-005 B | 1X2X1.5    | ✓               | 0.L             |                     |                  |                      |                      |             | ✓      |
| 7  | 030-PSH-005 C | 1X2X1.5    | ✓               | 0.L             |                     |                  |                      |                      |             | ✓      |
| 8  | 030-PSH-005 D | 1X2X1.5    | ✓               | 0.L             |                     |                  |                      |                      |             | ✓      |
| 9  | 030-GD-003    | 1X3X1.5    | Hold            |                 |                     |                  |                      |                      |             |        |
| 10 | 030-FD-003    | 1X3X1.5    | Hold            |                 |                     |                  |                      |                      |             |        |
| 11 |               |            |                 |                 |                     |                  |                      |                      |             |        |
| 12 |               |            |                 |                 |                     |                  |                      |                      |             |        |
| 13 |               |            |                 |                 |                     |                  |                      |                      |             |        |
| 14 |               |            |                 |                 |                     |                  |                      |                      |             |        |
| 15 |               |            |                 |                 |                     |                  |                      |                      |             |        |
| 16 |               |            |                 |                 |                     |                  |                      |                      |             |        |
| 17 |               |            |                 |                 |                     |                  |                      |                      |             |        |

Remarks :-

Reference

|           |  |       |  |     |  |
|-----------|--|-------|--|-----|--|
| PETROJET  |  | ENPPI |  | PMC |  |
| NAME :    |  |       |  |     |  |
| SIGNATURE |  |       |  |     |  |
| DATE      |  |       |  |     |  |



Enppi

EGPC CRUDE OIL TANK FARM



INSPECTION AND TEST REPORT FOR

CABLE INSULATION RESISTANCE TEST

INSPECTION REPORT NUMBER

RFI-177

INSTRUMENT TYPE:

SERIAL:

INSPECTION DATE & TIME

DOCUMENT No.

ITR-EL-0006A

DISCIPLINE

ELECTRICAL

SYSTEM NO.:

SHEET NO

AREA / PACKAGE:

SERVICE VOLTAGE:

220 v

TEST VOLTAGE:

1kv

| N<br>O | Item/Tag NO. | CABLE<br>SIZE | Continuity<br>Test | PHASE TO PHASE "M.Ohm" |       |       | PHASE TO<br>NEUTRAL "M.Ohm" |      |      | PHASES & NEUTRAL TO ARMOR<br>"M.Ohm" |        |        | RESULT |              |
|--------|--------------|---------------|--------------------|------------------------|-------|-------|-----------------------------|------|------|--------------------------------------|--------|--------|--------|--------------|
|        |              |               |                    | BR-BK                  | BR-GR | BK-GR | BR-B                        | BK-B | GR-B | BR-ARM                               | BK-ARM | GR-ARM | B-ARM  | Pass<br>Fail |
| 1      | 030-PSH-002  | 1*2*1.5       | ✓                  |                        |       |       |                             |      |      |                                      |        |        |        | ✓            |
| 2      | 030-PSH-004  | 1*2*1.5       | ✓                  |                        |       |       |                             |      |      |                                      |        |        |        | ✓            |
| 3      | 030-PSH-006  | 1*2*1.5       | ✓                  |                        |       |       |                             |      |      |                                      |        |        |        | ✓            |
| 4      | 030-PSH-008  | 1*2*1.5       | ✓                  |                        |       |       |                             |      |      |                                      |        |        |        | ✓            |
| 5      | 030-MCP-001  | 1*2*1.5       | ✓                  |                        |       |       |                             |      |      |                                      |        |        |        | ✓            |
| 6      | 030-JBI-002  | 8*2*1.5       | ✓                  |                        |       |       |                             |      |      |                                      |        |        |        | ✓            |
| 7      |              |               |                    |                        |       |       |                             |      |      |                                      |        |        |        |              |
| 8      |              |               |                    |                        |       |       |                             |      |      |                                      |        |        |        |              |
| 9      |              |               |                    |                        |       |       |                             |      |      |                                      |        |        |        |              |
| 10     |              |               |                    |                        |       |       |                             |      |      |                                      |        |        |        |              |
| 11     |              |               |                    |                        |       |       |                             |      |      |                                      |        |        |        |              |
| 12     |              |               |                    |                        |       |       |                             |      |      |                                      |        |        |        |              |
| 13     |              |               |                    |                        |       |       |                             |      |      |                                      |        |        |        |              |
| 14     |              |               |                    |                        |       |       |                             |      |      |                                      |        |        |        |              |
| 15     |              |               |                    |                        |       |       |                             |      |      |                                      |        |        |        |              |
| 16     |              |               |                    |                        |       |       |                             |      |      |                                      |        |        |        |              |
| 17     |              |               |                    |                        |       |       |                             |      |      |                                      |        |        |        |              |
| 18     |              |               |                    |                        |       |       |                             |      |      |                                      |        |        |        |              |
| 19     |              |               |                    |                        |       |       |                             |      |      |                                      |        |        |        |              |

Remarks :-

Reference :-

| PETROJET  |  | ENPPI |  | PMC |  |
|-----------|--|-------|--|-----|--|
| NAME :    |  |       |  |     |  |
| SIGNATURE |  |       |  |     |  |
| DATE      |  |       |  |     |  |

ITR-EL-0006A





EGPC CRUDE OIL TANK FARM



INSPECTION AND TEST REPORT FOR

### CABLE INSULATION RESISTANCE TEST

INSPECTION REPORT NUMBER  
REF:177

INSTRUMENT TYPE:

INSPECTION DATE & TIME

DOCUMENT NO  
ITR-EL-0006A

DISCIPLINE  
ELECTRICAL

SYSTEM NO:

SHEET NO

SERVICE VOLTAGE:  
220 V

TEST VOLTAGE:  
250 V

AREA / PACKAGE:

| N  | Item/Tag NO.  | CABLE SIZE | Continuity Test | PHASE TO PHASE "M.Ohm" |       |       | PHASE TO NEUTRAL "M.Ohm" |      |      | PHASES & NEUTRAL TO ARMOR "M.Ohm" |        |        | RESULT |             |
|----|---------------|------------|-----------------|------------------------|-------|-------|--------------------------|------|------|-----------------------------------|--------|--------|--------|-------------|
|    |               |            |                 | BR-BK                  | BR-GR | BK-GR | BR-B                     | BK-B | GR-B | BR-ARM                            | BK-ARM | GR-ARM | B-ARM  | Pass / Fail |
| 1  | 030-FD-003    | 1X3X2.5    | ✓               | Poor conductor         |       |       |                          |      |      |                                   |        |        |        | ✓           |
| 2  | 030-AISBF-001 | 12X3X2.5   | ✓               | 250 V                  |       |       |                          |      |      |                                   |        |        |        | ✓           |
| 3  |               |            |                 |                        |       |       |                          |      |      |                                   |        |        |        | ✓           |
| 4  |               |            |                 |                        |       |       |                          |      |      |                                   |        |        |        | ✓           |
| 5  |               |            |                 |                        |       |       |                          |      |      |                                   |        |        |        | ✓           |
| 6  |               |            |                 |                        |       |       |                          |      |      |                                   |        |        |        | ✓           |
| 7  |               |            |                 |                        |       |       |                          |      |      |                                   |        |        |        | ✓           |
| 8  |               |            |                 |                        |       |       |                          |      |      |                                   |        |        |        | ✓           |
| 9  |               |            |                 |                        |       |       |                          |      |      |                                   |        |        |        | ✓           |
| 10 |               |            |                 |                        |       |       |                          |      |      |                                   |        |        |        | ✓           |
| 11 |               |            |                 |                        |       |       |                          |      |      |                                   |        |        |        | ✓           |
| 12 |               |            |                 |                        |       |       |                          |      |      |                                   |        |        |        | ✓           |
| 13 |               |            |                 |                        |       |       |                          |      |      |                                   |        |        |        | ✓           |
| 14 |               |            |                 |                        |       |       |                          |      |      |                                   |        |        |        | ✓           |
| 15 |               |            |                 |                        |       |       |                          |      |      |                                   |        |        |        | ✓           |
| 16 |               |            |                 |                        |       |       |                          |      |      |                                   |        |        |        | ✓           |
| 17 |               |            |                 |                        |       |       |                          |      |      |                                   |        |        |        | ✓           |
| 18 |               |            |                 |                        |       |       |                          |      |      |                                   |        |        |        | ✓           |

Remarks :-

Reference :-

|           |          |       |     |
|-----------|----------|-------|-----|
| NAME :    | PETROJET | ENPPi | PMC |
| SIGNATURE |          |       |     |
| DATE      |          |       |     |

ITR-EL-0006A



Enppi

EGPC CRUDE OIL TANK FARM



INSPECTION AND TEST REPORT FOR

### CABLE INSULATION RESISTANCE TEST

INSPECTION REPORT NUMBER

RFI-12784

INSTRUMENT TYPE:

INSPECTION DATE & TIME

DOCUMENT NO.  
ITR-EL-0006A

SYSTEM NO.:

SHEET NO

SERIAL:

SERVICE VOLTAGE:  
220 V

DISPLINE  
ELECTRICAL

TEST VOLTAGE:  
1kv

AREA / PACKAGE:

| N<br>O     | Item/Tag NO. | CABLE<br>SIZE | Continuity<br>Test | PHASE TO PHASE "M.Ohm" |       |       | PHASE TO<br>NUETRAL "M.Ohm" |      |      | PHASES & NUETRAL TO ARMOR<br>"M.Ohm" |        |        | RESULT |      |      |
|------------|--------------|---------------|--------------------|------------------------|-------|-------|-----------------------------|------|------|--------------------------------------|--------|--------|--------|------|------|
|            |              |               |                    | BR-BK                  | BR-GR | BK-GR | BR-B                        | BK-B | GR-B | BR-ARM                               | BK-ARM | GR-ARM | B-ARM  | Pass | FAIL |
| 1          | 030-FD-004   | 1*3*2.5       | ✓                  |                        |       |       |                             |      |      |                                      |        |        |        | ✓    |      |
| 2          | 030-GD-004   | 1*3*2.5       | ✓                  |                        |       |       |                             |      |      |                                      |        |        |        | ✓    |      |
| 3          | 030-LHD-007  | 1*2*1.5       | ✓                  |                        |       |       |                             |      |      |                                      |        |        |        | ✓    |      |
| 4          | 030-LHD-008  | 1*2*1.5       | ✓                  |                        |       |       |                             |      |      |                                      |        |        |        | ✓    |      |
| 5          |              |               |                    |                        |       |       |                             |      |      |                                      |        |        |        |      |      |
| 6          |              |               |                    |                        |       |       |                             |      |      |                                      |        |        |        |      |      |
| 7          |              |               |                    |                        |       |       |                             |      |      |                                      |        |        |        |      |      |
| 8          |              |               |                    |                        |       |       |                             |      |      |                                      |        |        |        |      |      |
| 9          |              |               |                    |                        |       |       |                             |      |      |                                      |        |        |        |      |      |
| 10         |              |               |                    |                        |       |       |                             |      |      |                                      |        |        |        |      |      |
| 11         |              |               |                    |                        |       |       |                             |      |      |                                      |        |        |        |      |      |
| 12         |              |               |                    |                        |       |       |                             |      |      |                                      |        |        |        |      |      |
| 13         |              |               |                    |                        |       |       |                             |      |      |                                      |        |        |        |      |      |
| 14         |              |               |                    |                        |       |       |                             |      |      |                                      |        |        |        |      |      |
| 15         |              |               |                    |                        |       |       |                             |      |      |                                      |        |        |        |      |      |
| 16         |              |               |                    |                        |       |       |                             |      |      |                                      |        |        |        |      |      |
| 17         |              |               |                    |                        |       |       |                             |      |      |                                      |        |        |        |      |      |
| 18         |              |               |                    |                        |       |       |                             |      |      |                                      |        |        |        |      |      |
| 19         |              |               |                    |                        |       |       |                             |      |      |                                      |        |        |        |      |      |
| Remarks :- |              |               |                    |                        |       |       |                             |      |      |                                      |        |        |        |      |      |

Remarks :-

Reference :-

|           |          |              |     |
|-----------|----------|--------------|-----|
|           | PETROJET | ENPI         | PMC |
| NAME :    |          | Islam Sherif |     |
| SIGNATURE | Sob      |              |     |
| DATE      |          |              |     |

ITR-EL-0006A



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 12.07- Electrical Cables Termination Certificates



**Enppi**

EGPC CRUDE OIL TANK FARM



Owner : Egyptian General Petroleum Corporation (EGPC)

Project No: 01251-100-030  
:01251-100-031

Contractor CONSORTIUM (ENPPI / PETROJET)

Document No: ITR-QC-0001  
Revision No. : 00**REQUEST FOR INSPECTION**

ACTIVITY : INSTRUMENT INSTALLATION &amp; TERMINATION

NOTIFICATION NO. : PTJ-INS-RFI- 84 DISCIPLINE : E&amp;I

DATE : 6/16/2021

| NO. | DESCRIPTION                           | LOCATION | DATE / TIME | INSPECTION |       |     | REMARKS |
|-----|---------------------------------------|----------|-------------|------------|-------|-----|---------|
|     |                                       |          |             | PETROJET   | ENPPI | PMC |         |
|     | INSTRUMENT INSTALLATION & TERMINATION | MODULE 1 | 16-Jun-21   |            |       |     |         |
| 1   | 030-FD-004                            |          |             |            |       |     |         |
| 2   | 030-GD-004                            |          |             |            |       |     |         |
| 3   | 030-LHD-007                           |          |             |            |       |     |         |
| 4   | 030-LHD-008                           |          |             |            |       |     |         |
| 5   |                                       |          |             |            |       |     |         |
| 6   |                                       |          |             |            |       |     |         |
| 7   |                                       |          |             |            |       |     |         |
| 8   |                                       |          |             |            |       |     |         |
| 9   |                                       |          |             |            |       |     |         |
| 10  |                                       |          |             |            |       |     |         |
| 11  |                                       |          |             |            |       |     |         |
| 12  |                                       |          |             |            |       |     |         |
| 13  |                                       |          |             |            |       |     |         |
| 14  |                                       |          |             |            |       |     |         |
| 15  |                                       |          |             |            |       |     |         |
| 16  |                                       |          |             |            |       |     |         |
| 17  |                                       |          |             |            |       |     |         |
| 18  |                                       |          |             |            |       |     |         |
| 19  |                                       |          |             |            |       |     |         |

**NOTE:**

Inspection result : A - Approved B - Reject C - Approved with Comment

*All Tags must be installed.*

|           | PETROJET           | ENPPI                                | PMC                |
|-----------|--------------------|--------------------------------------|--------------------|
| NAME :    |                    |                                      |                    |
| SIGNATURE | <i>[Signature]</i> | <i>[Signature]</i><br>@ Islam Sherif | <i>[Signature]</i> |
| DATE      |                    |                                      |                    |

ITR-QC-0001



## EGPC CRUDE OIL TANK FARM



INSPECTION AND TEST REPORT FOR

## CABLE TERMINATION AND SPLICING

SYSTEM NO.:

INSPECTION REPORT NUMBER

RSI-84

INSPECTION DATE &amp; TIME

ITR NUMBER

ITR-EL-0009

DISCIPLINE

ELEC

SHEET NO

1 OF 1

Item/Tag NO.

Type :-

Core:

Size:

| NO. | Description of check                                                                                                                            | RESULT |        |      |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|------|
|     |                                                                                                                                                 | ACCEPT | REJECT | N/A. |
| 1   | Check cable glands are correct type and size as per cable schedule.                                                                             | ✓      |        |      |
| 2   | Check there are no damages to cores, termination chamber layout is satisfactory, core identification is correct, crimped and pins satisfactory. | ✓      |        |      |
| 3   | Check cable tag is done correctly.                                                                                                              |        | ✓      |      |
| 4   | Test and confirm conductor, phase continuity.                                                                                                   | ✓      |        |      |
| 5   | Check insulation resistance test (megger) is completed *I                                                                                       | ✓      |        |      |
| 6   | Check Hi-pot test is completed, only for MV/HV cables *II                                                                                       |        |        | ✓    |
| 7   | Connect all cores at both ends and confirm all connections are correct as per termination diagram.                                              | ✓      |        |      |
| 8   | Confirm spare cores, screens are earthed and conform to design drawings/specifications                                                          | ✓      |        |      |
| 9   | Check enclosure cover is installed, no damages and no bolts are missing                                                                         | ✓      |        |      |
| 10  | Calibration test certificate of testing equipment to be checked.                                                                                |        |        | ✓    |

Remarks :

|           | PETROJET | ENPPI | PMC |
|-----------|----------|-------|-----|
| NAME :    |          |       |     |
| SIGNATURE |          |       |     |
| DATE      |          |       |     |

ITR-EL-0009



**Enppi**

EGPC CRUDE OIL TANK FARM



Owner : Egyptian General Petroleum Corporation (EGPC)

Project No: 01251-100-030  
:01251-100-031

Contractor CONSORTIUM (ENPPI / PETROJET)

Document No: ITR-QC-0001  
Revision No. : 00**REQUEST FOR INSPECTION**

ACTIVITY : INSTRUMENT INSTALLATION

NOTIFICATION NO. : PTJ-INS-RFI- 61 DISCIPLINE : E&amp;I

DATE : 5/22/2021

| NO. | DESCRIPTION             | LOCATION | DATE / TIME | INSPECTION |       |     | REMARKS |
|-----|-------------------------|----------|-------------|------------|-------|-----|---------|
|     |                         |          |             | PETROJET   | ENPPI | PMC |         |
|     | INSTRUMENT INSTALLATION | MODULE 1 | 22-May-21   |            |       |     |         |
| 1   | 030-GD-015              |          |             |            |       |     |         |
| 2   | 030-FD-003              |          |             |            |       |     |         |
| 3   |                         |          |             |            |       |     |         |
| 4   |                         |          |             |            |       |     |         |
| 5   |                         |          |             |            |       |     |         |
| 6   |                         |          |             |            |       |     |         |
| 7   |                         |          |             |            |       |     |         |
| 8   |                         |          |             |            |       |     |         |
| 9   |                         |          |             |            |       |     |         |
| 10  |                         |          |             |            |       |     |         |
| 11  |                         |          |             |            |       |     |         |
| 12  |                         |          |             |            |       |     |         |
| 13  |                         |          |             |            |       |     |         |
| 14  |                         |          |             |            |       |     |         |
| 15  |                         |          |             |            |       |     |         |
| 16  |                         |          |             |            |       |     |         |
| 17  |                         |          |             |            |       |     |         |
| 18  |                         |          |             |            |       |     |         |

NOTE: 1 - Tag name to be installed / + Corrosion should be installed (safety) - Orientation should be adjusted  
Inspection result : A - Approved B ~~Reject~~ C - Approved with Comment

|           | PETROJET | ENPPI | PMC |
|-----------|----------|-------|-----|
| NAME :    |          |       |     |
| SIGNATURE |          |       |     |
| DATE      |          |       |     |

ITR-QC-0001



EGPC CRUDE OIL TANK FARM  
AGROOD AREA (MODULE 1 & 2 )



INSPECTION AND TEST REPORT FOR

INSTRUMENT INSTALLATION

|                                    |                        |                           |                        |          |
|------------------------------------|------------------------|---------------------------|------------------------|----------|
| INSPECTION REPORT NUMBER<br>RFI-61 | INSPECTION DATE & TIME | ITR NUMBER<br>ITR-IC-0001 | DISPLINE<br>INSTRUMENT | SHEET NO |
|------------------------------------|------------------------|---------------------------|------------------------|----------|

|                 |                  |
|-----------------|------------------|
| JOB DESCRIPTION | AREA DESCRIPTION |
|-----------------|------------------|

|                             |                              |                        |
|-----------------------------|------------------------------|------------------------|
| ENGINEERING DOCUMENT NUMBER | SYSTEM NUMBER(IF APPLICABLE) | SUBCONTRACTOR/SUPPLIER |
|-----------------------------|------------------------------|------------------------|

|                |      |
|----------------|------|
| ITEM / TAG NO. | TYPE |
|----------------|------|

| NO. | INSPECTION                                                   | RESULT |        |      |
|-----|--------------------------------------------------------------|--------|--------|------|
|     |                                                              | ACCEPT | REJECT | N/A. |
| 1   | No physical damage are found                                 | ✓      |        |      |
| 2   | Type / size / location as per drawings and vendor data sheet | ✓      |        |      |
| 3   | Identification / name plate attached correctly               |        | ✓      |      |
| 4   | Stanchion type / mounting as per drawings                    | ✓      |        |      |
| 5   | Welding (if required) and touch up                           | ✓      |        |      |
| 6   | Anchor bolting / Bolt tightening                             | ✓      |        |      |
| 7   | Grouting (if required)                                       |        |        | ✓    |
| 8   | Orientation / direction as per drawings                      | ✓      | ✓      |      |
| 9   | Accessibility                                                | ✓      |        |      |
| 10  | Assembling compartments properly installed                   | ✓      |        |      |
| 11  | Earthing and bonding properly installed                      |        | ✓      |      |
| 12  | Cleanliness                                                  | ✓      |        |      |

|          |
|----------|
| REMARKS: |
|----------|

|                      |
|----------------------|
| REFERENCE DOCUMENTS: |
|----------------------|

| SUBCONTRACTOR | PETROJET  | ENPPI     | PMC       |
|---------------|-----------|-----------|-----------|
| NAME          | NAME      | NAME      | NAME      |
| SIGNATURE     | SIGNATURE | SIGNATURE | SIGNATURE |
| DATE          | DATE      | DATE      | DATE      |

ITR-CI-0001





**Enppi**

EGPC CRUDE OIL TANK FARM



Owner : Egyptian General Petroleum Corporation (EGPC)

Project No: 01251-100-030  
:01251-100-031

Contractor CONSORTIUM (ENPPI / PETROJET)

Document No: ITR-QC-0001  
Revision No. : 00

## REQUEST FOR INSPECTION

ACTIVITY : CABLE TERMINATION And Splicing

NOTIFICATION NO. : PTJ-INS-RFI-70 DISCIPLINE : E&I

DATE : 5/30/2021

| NO. | DESCRIPTION       | LOCATION | DATE / TIME | INSPECTION |       |     | REMARKS |
|-----|-------------------|----------|-------------|------------|-------|-----|---------|
|     |                   |          |             | PETROJET   | ENPPI | PMC |         |
|     | CABLE TERMINATION | MODULE.1 | 30-May-21   |            |       |     |         |
| 1   | 030-FD-003        |          |             |            |       |     |         |
| 2   | 030-AJBF-001      |          |             |            |       |     |         |
| 3   |                   |          |             |            |       |     |         |
| 4   |                   |          |             |            |       |     |         |
| 5   |                   |          |             |            |       |     |         |
| 6   |                   |          |             |            |       |     |         |
| 7   |                   |          |             |            |       |     |         |
| 8   |                   |          |             |            |       |     |         |
| 9   |                   |          |             |            |       |     |         |
| 10  |                   |          |             |            |       |     |         |
| 11  |                   |          |             |            |       |     |         |
| 12  |                   |          |             |            |       |     |         |
| 13  |                   |          |             |            |       |     |         |
| 14  |                   |          |             |            |       |     |         |
| 15  |                   |          |             |            |       |     |         |
| 16  |                   |          |             |            |       |     |         |
| 17  |                   |          |             |            |       |     |         |
| 18  |                   |          |             |            |       |     |         |

### NOTE:

Inspection result : A - Approved B - Reject C - Approved with Comment

|           | PETROJET | ENPPI | PMC |
|-----------|----------|-------|-----|
| NAME      |          |       |     |
| SIGNATURE |          |       |     |
| DATE      |          |       |     |

ITR-QC-0001



## EGPC CRUDE OIL TANK FARM



INSPECTION AND TEST REPORT FOR

## CABLE TERMINATION AND SPLICING

SYSTEM NO.:

INSPECTION REPORT NUMBER

INSPECTION DATE &amp; TIME

ITR NUMBER

DISCIPLINE

SHEET NO

ITR-EL-0009

ELEC

1 OF 1

Item/Tag NO.

Type :-

Core:

Size:

| NO. | Description of check                                                                                                                            | RESULT |        |      |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|------|
|     |                                                                                                                                                 | ACCEPT | REJECT | N/A. |
| 1   | Check cable glands are correct type and size as per cable schedule.                                                                             | ✓      |        |      |
| 2   | Check there are no damages to cores, termination chamber layout is satisfactory, core identification is correct, crimped and pins satisfactory. | ✓      |        |      |
| 3   | Check cable tag is done correctly.                                                                                                              | ✓      |        |      |
| 4   | Test and confirm conductor, phase continuity.                                                                                                   | ✓      |        |      |
| 5   | Check insulation resistance test (megger) is completed *I                                                                                       | ✓      |        |      |
| 6   | Check Hi-pot test is completed, only for MV/HV cables *II                                                                                       |        |        | ✓    |
| 7   | Connect all cores at both ends and confirm all connections are correct as per termination diagram.                                              | ✓      |        |      |
| 8   | Confirm spare cores, screens are earthed and conform to design drawings/specifications                                                          | ✓      |        |      |
| 9   | Check enclosure cover is installed, no damages and no bolts are missing                                                                         | ✓      |        |      |
| 10  | Calibration test certificate of testing equipment to be checked.                                                                                | ✓      |        |      |

Remarks :

|           | PETROJET | ENPPI | PMC |
|-----------|----------|-------|-----|
| NAME :    |          |       |     |
| SIGNATURE |          |       |     |
| DATE      |          |       |     |

ITR-EL-0009



**Enppi****EGPC CRUDE OIL TANK FARM**Owner : **Egyptian General Petroleum Corporation (EGPC)**Project No: 01251-100-030  
:01251-100-031Contractor **CONSORTIUM (ENPPI / PETROJET)**Document No: ITR-QC-0001  
Revision No. : 00**REQUEST FOR INSPECTION**ACTIVITY : **INSTRUMENT INSTALLATION**NOTIFICATION NO. : **PTJ-INS-RFI- 59** DISCIPLINE : **E&I**DATE : **5/20/2021**

| NO. | DESCRIPTION             | LOCATION | DATE / TIME | INSPECTION |       |     | REMARKS |
|-----|-------------------------|----------|-------------|------------|-------|-----|---------|
|     |                         |          |             | PETROJET   | ENPPI | PMC |         |
|     | INSTRUMENT INSTALLATION | MODULE 1 | 20-May-21   |            |       |     |         |
| 1   | 030-PSH-002             |          |             |            |       |     |         |
| 2   | 030-PSH-004             |          |             |            |       |     |         |
| 3   | 030-PSH-006             |          |             |            |       |     |         |
| 4   | 030-PSH-008             |          |             |            |       |     |         |
| 5   | 030-PSH-001A            |          |             |            |       |     |         |
| 6   | 030-PSH-001B            |          |             |            |       |     |         |
| 7   | 030-PSH-001C            |          |             |            |       |     |         |
| 8   | 030-PSH-001D            |          |             |            |       |     |         |
| 9   | 030-PSH-007A            |          |             |            |       |     |         |
| 10  | 030-PSH-007B            |          |             |            |       |     |         |
| 11  | 030-PSH-007C            |          |             |            |       |     |         |
| 12  | 030-PSH-007D            |          |             |            |       |     |         |
| 13  |                         |          |             |            |       |     |         |
| 14  |                         |          |             |            |       |     |         |
| 15  |                         |          |             |            |       |     |         |
| 16  |                         |          |             |            |       |     |         |
| 17  |                         |          |             |            |       |     |         |
| 18  |                         |          |             |            |       |     |         |

**NOTE:**

Inspection result : A - Approved B - Reject C - Approved with Comment

*tag no to be install. (Dor) Sabh*

|           | PETROJET    | ENPPI               | PMC            |
|-----------|-------------|---------------------|----------------|
| NAME :    |             |                     |                |
| SIGNATURE | <i>Sabh</i> | <i>Islam Sherif</i> | <i>M. Omar</i> |
| DATE      |             |                     |                |

ITR-QC-0001



EGPC CRUDE OIL TANK FARM  
AGROOD AREA (MODULE 1 & 2)



INSPECTION AND TEST REPORT FOR

**INSTRUMENT INSTALLATION**

|                                    |                        |                           |                          |          |
|------------------------------------|------------------------|---------------------------|--------------------------|----------|
| INSPECTION REPORT NUMBER<br>RFI-59 | INSPECTION DATE & TIME | ITR NUMBER<br>ITR-IC-0001 | DISCIPLINE<br>INSTRUMENT | SHEET NO |
|------------------------------------|------------------------|---------------------------|--------------------------|----------|

|                             |  |                              |                        |
|-----------------------------|--|------------------------------|------------------------|
| JOB DESCRIPTION             |  | AREA DESCRIPTION             |                        |
| ENGINEERING DOCUMENT NUMBER |  | SYSTEM NUMBER(IF APPLICABLE) | SUBCONTRACTOR/SUPPLIER |
| ITEM / TAG NO.              |  | TYPE                         |                        |

| NO. | INSPECTION                                                   | RESULT |        |      |
|-----|--------------------------------------------------------------|--------|--------|------|
|     |                                                              | ACCEPT | REJECT | N/A. |
| 1   | No physical damage are found                                 | ✓      |        |      |
| 2   | Type / size / location as per drawings and vendor data sheet | ✓      |        |      |
| 3   | Identification / name plate attached correctly               |        | ✓      |      |
| 4   | Stanchion type / mounting as per drawings                    | ✓      |        |      |
| 5   | Welding (if required) and touch up                           | ✓      |        |      |
| 6   | Anchor bolting / Bolt tightening                             | ✓      |        |      |
| 7   | Grouting (if required)                                       |        |        | ✓    |
| 8   | Orientation / direction as per drawings                      | ✓      |        |      |
| 9   | Accessibility                                                | ✓      |        |      |
| 10  | Assembling compartments properly installed                   | ✓      |        |      |
| 11  | Earthing and bonding properly installed                      |        | ✓      |      |
| 12  | Cleanliness                                                  | ✓      |        |      |

REMARKS:

REFERENCE DOCUMENTS:

| SUBCONTRACTOR | PETROJET              | ENPPI                       | PMC                      |
|---------------|-----------------------|-----------------------------|--------------------------|
| NAME          | NAME                  | NAME                        | NAME                     |
| SIGNATURE     | SIGNATURE <i>Sobh</i> | SIGNATURE <i>Ham Sherif</i> | SIGNATURE <i>M. Omar</i> |
| DATE          | DATE                  | DATE                        | DATE                     |

ITR-CI-0001



**Enppi**

EGPC CRUDE OIL TANK FARM



Owner : Egyptian General Petroleum Corporation (EGPC)

Project No: 01251-100-030  
:01251-100-031

Contractor CONSORTIUM (ENPPI / PETROJET)

Document No: ITR-QC-0001  
Revision No. : 00**REQUEST FOR INSPECTION**

ACTIVITY : CABLE TERMINATION AND SPLICING AND INSTALLATION

NOTIFICATION NO. : PTJ-INS-RFI- 79 DISCIPLINE : E&amp;I

DATE : 6/9/2021

| NO. | DESCRIPTION                                     | LOCATION | DATE / TIME | INSPECTION |       |     | REMARKS                                                                                                                                                                                                                             |
|-----|-------------------------------------------------|----------|-------------|------------|-------|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     |                                                 |          |             | PETROJET   | ENPPI | PMC |                                                                                                                                                                                                                                     |
|     | CABLE TERMINATION AND SPLICING AND INSTALLATION | MODULE 1 | 9-Jun-21    |            |       |     |                                                                                                                                                                                                                                     |
| 1   | 030-PSH-002                                     | }        |             |            |       |     | 1. Cables to be laid in the trench and backfilled with soft sand (Done) Sobh<br>2. S.S. tray missing in both sides (Done) Sobh<br>3. Cables to be systemized in cable tray (Done) Sobh<br>4. Cable tray cover missing (none) (Sobh) |
| 2   | 030-PSH-004                                     |          |             |            |       |     |                                                                                                                                                                                                                                     |
| 3   | 030-PSH-006                                     |          |             |            |       |     |                                                                                                                                                                                                                                     |
| 4   | 030-PSH-008                                     |          |             |            |       |     |                                                                                                                                                                                                                                     |
| 5   | 030-MCP-001                                     |          |             |            |       |     |                                                                                                                                                                                                                                     |
| 6   | 030-JBF-002                                     |          |             |            |       |     |                                                                                                                                                                                                                                     |
| 7   |                                                 |          |             |            |       |     |                                                                                                                                                                                                                                     |
| 8   |                                                 |          |             |            |       |     |                                                                                                                                                                                                                                     |
| 9   |                                                 |          |             |            |       |     |                                                                                                                                                                                                                                     |
| 10  |                                                 |          |             |            |       |     |                                                                                                                                                                                                                                     |
| 11  |                                                 |          |             |            |       |     |                                                                                                                                                                                                                                     |
| 12  |                                                 |          |             |            |       |     |                                                                                                                                                                                                                                     |
| 13  |                                                 |          |             |            |       |     |                                                                                                                                                                                                                                     |
| 14  |                                                 |          |             |            |       |     |                                                                                                                                                                                                                                     |
| 15  |                                                 |          |             |            |       |     |                                                                                                                                                                                                                                     |
| 16  |                                                 |          |             |            |       |     |                                                                                                                                                                                                                                     |
| 17  |                                                 |          |             |            |       |     |                                                                                                                                                                                                                                     |
| 18  |                                                 |          |             |            |       |     |                                                                                                                                                                                                                                     |
| 19  |                                                 |          |             |            |       |     |                                                                                                                                                                                                                                     |

**NOTE:**

Inspection result : A - Approved B - Reject C - Approved with Comment

|           | PETROJET | ENPPI | PMC |
|-----------|----------|-------|-----|
| NAME :    |          |       |     |
| SIGNATURE |          |       |     |
| DATE      |          |       |     |

ITR-QC-0001

**INSPECTION AND TEST REPORT FOR**
**CABLE TERMINATION AND SPLICING**

SYSTEM NO.:

INSPECTION REPORT NUMBER

INSPECTION DATE &amp; TIME

ITR NUMBER

ITR-EL-0009

DISPLINE

ELEC

SHEET NO

1 OF 1

Item/Tag NO.


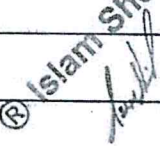
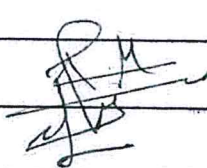
Type :-

Core:

Size:

| NO. | Description of check                                                                                                                            | RESULT |        |      |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|------|
|     |                                                                                                                                                 | ACCEPT | REJECT | N/A. |
| 1   | Check cable glands are correct type and size as per cable schedule.                                                                             | ✓      |        |      |
| 2   | Check there are no damages to cores, termination chamber layout is satisfactory, core identification is correct, crimped and pins satisfactory. | ✓      |        |      |
| 3   | Check cable tag is done correctly.                                                                                                              |        | ✓      |      |
| 4   | Test and confirm conductor, phase continuity.                                                                                                   | ✓      |        |      |
| 5   | Check insulation resistance test (megger) is completed *I                                                                                       | ✓      |        |      |
| 6   | Check Hi-pot test is completed, only for MV/HV cables *II                                                                                       |        |        | ✓    |
| 7   | Connect all cores at both ends and confirm all connections are correct as per termination diagram.                                              | ✓      |        |      |
| 8   | Confirm spare cores, screens are earthed and conform to design drawings/specifications                                                          | ✓      |        |      |
| 9   | Check enclosure cover is installed, no damages and no bolts are missing                                                                         | ✓      |        |      |
| 10  | Calibration test certificate of testing equipment to be checked.                                                                                |        |        | ✓    |

Remarks :

|           | PETROJET                                                                            | ENPPI                                                                               | PMC                                                                                   |
|-----------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| NAME :    |                                                                                     |                                                                                     |                                                                                       |
| SIGNATURE |  |  |  |
| DATE      |                                                                                     |                                                                                     |                                                                                       |

ITR-EL-0009



**Enppi**

## EGPC CRUDE OIL TANK FARM



Owner : Egyptian General Petroleum Corporation (EGPC)

Project No: 01251-100-030  
:01251-100-031

Contractor CONSORTIUM (ENPPI / PETROJET)

Document No: ITR-QC-0001  
Revision No. : 00

## REQUEST FOR INSPECTION

ACTIVITY : INSTRUMENT INSTALLATION

NOTIFICATION NO. : PTJ-INS-RFI-58 DISCIPLINE : E&amp;I

DATE : 5/19/2021

| NO. | DESCRIPTION             | LOCATION | DATE / TIME | INSPECTION |       |     | REMARKS |
|-----|-------------------------|----------|-------------|------------|-------|-----|---------|
|     |                         |          |             | PETROJET   | ENPPI | PMC |         |
|     | INSTRUMENT INSTALLATION | MODULE 1 | 19-May-21   |            |       |     |         |
| 1   | 030-LHD-005             | ✓        |             |            |       |     |         |
| 2   | 030-LHD-006             | ✓        |             |            |       |     |         |
| 3   | 030-PSH-005A            | ✓        |             |            |       |     |         |
| 4   | 030-PSH-005B            | ✓        |             |            |       |     |         |
| 5   | 030-PSH-005C            | ✓        |             |            |       |     |         |
| 6   | 030-PSH-005D            | ✓        |             |            |       |     |         |
| 7   | 030-PSH-003A            | ✓        |             |            |       |     |         |
| 8   | 030-PSH-003B            | ✓        |             |            |       |     |         |
| 9   | 030-PSH-003C            | ✓        |             |            |       |     |         |
| 10  | 030-PSH-003D            | ✓        |             |            |       |     |         |
| 11  |                         |          |             |            |       |     |         |
| 12  |                         |          |             |            |       |     |         |
| 13  |                         |          |             |            |       |     |         |
| 14  |                         |          |             |            |       |     |         |
| 15  |                         |          |             |            |       |     |         |
| 16  |                         |          |             |            |       |     |         |
| 17  |                         |          |             |            |       |     |         |
| 18  |                         |          |             |            |       |     |         |

NOTE: All tags must be installed. (Done) sub

Inspection result : A - Approved B - Reject C - Approved with Comment

|           | PETROJET | ENPPI | PMC |
|-----------|----------|-------|-----|
| NAME :    |          |       |     |
| SIGNATURE |          |       |     |
| DATE      |          |       |     |

ITR-QC-0001



EGPC CRUDE OIL TANK FARM  
AGROOD AREA (MODULE 1 & 2 )



INSPECTION AND TEST REPORT FOR

INSTRUMENT INSTALLATION

|                                    |                        |                           |                          |          |
|------------------------------------|------------------------|---------------------------|--------------------------|----------|
| INSPECTION REPORT NUMBER<br>RFI-58 | INSPECTION DATE & TIME | ITR NUMBER<br>ITR-IC-0001 | DISCIPLINE<br>INSTRUMENT | SHEET NO |
|------------------------------------|------------------------|---------------------------|--------------------------|----------|

|                             |  |                              |                        |
|-----------------------------|--|------------------------------|------------------------|
| JOB DESCRIPTION             |  | AREA DESCRIPTION             |                        |
| ENGINEERING DOCUMENT NUMBER |  | SYSTEM NUMBER(IF APPLICABLE) | SUBCONTRACTOR/SUPPLIER |
| ITEM / TAG NO.              |  | TYPE                         |                        |

| NO. | INSPECTION                                                   | RESULT |        |      |
|-----|--------------------------------------------------------------|--------|--------|------|
|     |                                                              | ACCEPT | REJECT | N/A. |
| 1   | No physical damage are found                                 | ✓      |        |      |
| 2   | Type / size / location as per drawings and vendor data sheet | ✓      |        |      |
| 3   | Identification / name plate attached correctly               | ✓      |        |      |
| 4   | Stanchion type / mounting as per drawings                    | ✓      |        |      |
| 5   | Welding (if required) and touch up                           |        |        | ✓    |
| 6   | Anchor bolting / Bolt tightening                             |        |        | ✓    |
| 7   | Grouting (if required)                                       |        |        | ✓    |
| 8   | Orientation / direction as per drawings                      | ✓      |        |      |
| 9   | Accessibility                                                | ✓      |        |      |
| 10  | Assembling compartments properly installed                   |        |        | ✓    |
| 11  | Earthing and bonding properly installed                      |        | ✓      |      |
| 12  | Cleanliness                                                  | ✓      |        |      |

REMARKS:

REFERENCE DOCUMENTS:

| SUBCONTRACTOR | PETROJET  | ENPPI     | PMC       |
|---------------|-----------|-----------|-----------|
| NAME          | NAME      | NAME      | NAME      |
| SIGNATURE     | SIGNATURE | SIGNATURE | SIGNATURE |
| DATE          | DATE      | DATE      | DATE      |

ITR-CI-0001





Document No: ITR-QC-0001  
Revision No. : 00

DATE : 5/25/2021

|           | PETROJET                                                                            | ENPPI                                                                               | PMC                                                                                   |
|-----------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| NAME :    |                                                                                     |                                                                                     |                                                                                       |
| SIGNATURE |  |  |  |
| DATE      |                                                                                     |                                                                                     |                                                                                       |



## EGPC CRUDE OIL TANK FARM



## INSPECTION AND TEST REPORT FOR

## CABLE TERMINATION AND SPLICING

SYSTEM NO.:

INSPECTION REPORT NUMBER

PTJ-INST-RFI- 063

INSPECTION DATE &amp; TIME

ITR NUMBER

ITR-EL-0009

DISCIPLINE

INST

SHEET NO

1 OF 1

Item/Tag NO.

Type :-

Core:

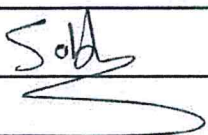
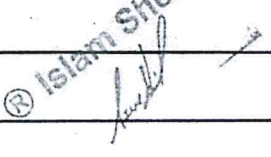
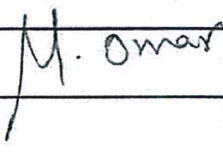
Size:

| NO. | Description of check                                                                                                                            | RESULT |        |      |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|------|
|     |                                                                                                                                                 | ACCEPT | REJECT | N/A. |
| 1   | Check cable glands are correct type and size as per cable schedule.                                                                             | ✓      |        |      |
| 2   | Check there are no damages to cores, termination chamber layout is satisfactory, core identification is correct, crimped and pins satisfactory. | ✓      |        |      |
| 3   | Check cable tag is done correctly.                                                                                                              |        | ✓      |      |
| 4   | Test and confirm conductor, phase continuity.                                                                                                   | ✓      |        |      |
| 5   | Check insulation resistance test (megger) is completed *I                                                                                       | ✓      |        |      |
| 6   | Check Hi-pot test is completed, only for MV/HV cables **                                                                                        |        |        | ✓    |
| 7   | Connect all cores at both ends and confirm all connections are correct as per termination diagram.                                              | ✓      |        |      |
| 8   | Confirm spare cores, screens are earthed and conform to design drawings/specifications                                                          | ✓      |        |      |
| 9   | Check enclosure cover is installed, no damages and no bolts are missing                                                                         | ✓      |        |      |
| 10  | Calibration test certificate of testing equipment to be checked.                                                                                |        |        | ✓    |

## Remarks :

\*I : ITR-EL-006A/B

\*\* : ITR-EL-008

|           | PETROJET                                                                            | ENPPI                                                                               | PMC                                                                                   |
|-----------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| NAME :    |                                                                                     |                                                                                     |                                                                                       |
| SIGNATURE |  |  |  |
| DATE      |                                                                                     |                                                                                     |                                                                                       |

ITR-EL-0009



**Enppi**

EGPC CRUDE OIL TANK FARM



Owner : Egyptian General Petroleum Corporation (EGPC)

Project No: 01251-100-030  
:01251-100-031

Contractor CONSORTIUM (ENPPI / PETROJET)

Document No: ITR-QC-0001  
Revision No. : 00**REQUEST FOR INSPECTION**

ACTIVITY : INS INSTALLATION &amp; TERMINATION

NOTIFICATION NO. : PTJ-INS-RFI- 72 DISCIPLINE : E&amp;I

DATE : 6/6/2021

| NO. | DESCRIPTION                    | LOCATION | DATE / TIME | INSPECTION |       |     | REMARKS |
|-----|--------------------------------|----------|-------------|------------|-------|-----|---------|
|     |                                |          |             | PETROJET   | ENPPI | PMC |         |
|     | INS INSTALLATION & TERMINATION | MODULE 1 | 6-Jun-21    |            |       |     |         |
| 1   | 030-GD-003                     |          |             |            |       |     |         |
| 2   |                                |          |             |            |       |     |         |
| 3   |                                |          |             |            |       |     |         |
| 4   |                                |          |             |            |       |     |         |
| 5   |                                |          |             |            |       |     |         |
| 6   |                                |          |             |            |       |     |         |
| 7   |                                |          |             |            |       |     |         |
| 8   |                                |          |             |            |       |     |         |
| 9   |                                |          |             |            |       |     |         |
| 10  |                                |          |             |            |       |     |         |
| 11  |                                |          |             |            |       |     |         |
| 12  |                                |          |             |            |       |     |         |
| 13  |                                |          |             |            |       |     |         |
| 14  |                                |          |             |            |       |     |         |
| 15  |                                |          |             |            |       |     |         |
| 16  |                                |          |             |            |       |     |         |
| 17  |                                |          |             |            |       |     |         |
| 18  |                                |          |             |            |       |     |         |
| 19  |                                |          |             |            |       |     |         |

**NOTE:**

Inspection result : A - Approved B - Reject C - Approved with Comment

*all Toge must be installed - (Done) Soli*

|           | PETROJET     | ENPPI       | PMC |
|-----------|--------------|-------------|-----|
| NAME :    | Ahmed Hassan | Isam Sherif |     |
| SIGNATURE |              |             |     |
| DATE      | 8/6/2021     |             |     |

ITR-QC-0001



## EGPC CRUDE OIL TANK FARM



## INSPECTION AND TEST REPORT FOR

## CABLE TERMINATION AND SPLICING

SYSTEM NO.:

INSPECTION REPORT NUMBER

INSPECTION DATE &amp; TIME

ITR NUMBER

DISCIPLINE

SHEET NO

ITR-EL-0009

ELEC

1 OF 1

Item/Tag NO.

Type :-

Core:

Size:

| NO. | Description of check                                                                                                                            | RESULT |        |      |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|------|
|     |                                                                                                                                                 | ACCEPT | REJECT | N/A. |
| 1   | Check cable glands are correct type and size as per cable schedule.                                                                             | ✓      |        |      |
| 2   | Check there are no damages to cores, termination chamber layout is satisfactory, core identification is correct, crimped and pins satisfactory. | ✓      |        |      |
| 3   | Check cable tag is done correctly.                                                                                                              | ✓      |        |      |
| 4   | Test and confirm conductor, phase continuity.                                                                                                   | ✓      |        |      |
| 5   | Check insulation resistance test (megger) is completed *I                                                                                       | ✓      |        |      |
| 6   | Check Hi-pot test is completed, only for MV/HV cables *II                                                                                       |        |        | ✓    |
| 7   | Connect all cores at both ends and confirm all connections are correct as per termination diagram.                                              | ✓      |        |      |
| 8   | Confirm spare cores, screens are earthed and conform to design drawings/specifications                                                          | ✓      |        |      |
| 9   | Check enclosure cover is installed, no damages and no bolts are missing                                                                         | ✓      |        |      |
| 10  | Calibration test certificate of testing equipment to be checked.                                                                                | ✓      |        |      |

Remarks :

|           | PETROJET     | ENRPI | PMC |
|-----------|--------------|-------|-----|
| NAME :    | Ahmed Hassan |       |     |
| SIGNATURE |              |       |     |
| DATE      | 8/6/2021     |       |     |

ITR-EL-0009



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 12.08- FAT Reports & Certificates



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 12.09- SAT Reports & Certificates





Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 12.10- Electrical Pre-Commissioning Check Lists

## PRE-COMMISSIONING CHECK LIST DETECTOR LP-13 A

**PROJECT TITLE** : EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)

**PROJECT NUMBER** : 1251-100

**DISCIPLINE** : Loss Prevention

**SYSTEM NAME** : Tank-3 Fire Protection System

**SYSTEM ID** : 030-LP-007

**SUB-SYSTEM NAME** : Tank-3 Fire Protection System

**SUB-SYSTEM ID** : 030-LP-007

**ITEM TAG No.** : 030-GD-003

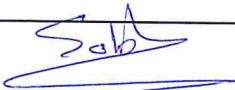

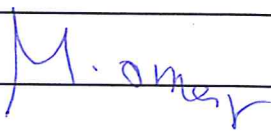
**AREA** : 30

**REF. DWGs/DOCs** :


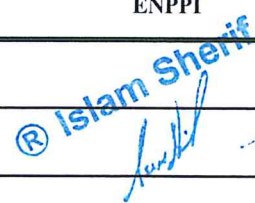
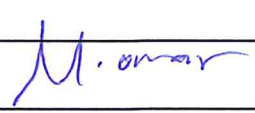
| No.      | DESCRIPTION                                                                       | RESULT   | PL       |
|----------|-----------------------------------------------------------------------------------|----------|----------|
|          |                                                                                   | OK/NA/PL | ITEM No. |
| <b>1</b> | <b>FIRE AND GAS DETECTOR:</b>                                                     |          |          |
| 1.1      | Detector placed in the correct location as per the distribution drawings.         | ✓        |          |
| 1.2      | Detector placed in the correct elevation as per the distribution drawings.        | ✓        |          |
| 1.3      | Detector mounted in the correct orientation as per common engineering practice.   | ✓        |          |
| 1.4      | Outlet tags are according to the drawing & correctly placed.                      | ✓        |          |
| 1.5      | Detector is in good condition and has no physical/mechanical damage.              | ✓        |          |
| 1.6      | Detector is properly fixed.                                                       | ✓        |          |
| 1.7      | Detector type and model number are as mentioned in the drawings/purchase order.   | ✓        |          |
| 1.8      | Check accessibility for maintenance.                                              | ✓        |          |
| 1.9      | Check that there are no missing parts.                                            | ✓        |          |
| 1.10     | Check/perform Pre-comm. check lists for all cables connected/wired to the outlet. | ✓        |          |

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

| COMPANY   | CONST. CONTRACTOR                                                                   | ENPPI                                                                               | CUSTOMER                                                                              |
|-----------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| NAME      |                                                                                     |                                                                                     |                                                                                       |
| SIGNATURE |  |  |  |
| DATE      |                                                                                     |                                                                                     |                                                                                       |

| <b>PRE-COMMISSIONING CHECK LIST</b><br><b>DETECTOR</b><br><b>LP-13 A</b>                        |                                                                                   |                                     |          |
|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------|----------|
| <b>PROJECT TITLE</b> : EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)            |                                                                                   |                                     |          |
| <b>PROJECT NUMBER</b> : 1251-100                                                                |                                                                                   | <b>DISCIPLINE</b> : Loss Prevention |          |
| <b>SYSTEM NAME</b> : Tank-3 Fire Protection System                                              |                                                                                   | <b>SYSTEM ID</b> : 030-LP-007       |          |
| <b>SUB-SYSTEM NAME</b> : Tank-3 Fire Protection System                                          |                                                                                   | <b>SUB-SYSTEM ID</b> : 030-LP-007   |          |
| <b>ITEM TAG No.</b> : 030-FD-003                                                                |                                                                                   | <b>AREA</b> : 30                    |          |
| <b>REF. DWGs/DOCs</b> : 030-FD-003                                                              |                                                                                   |                                     |          |
| No.                                                                                             | DESCRIPTION                                                                       | RESULT                              | PL       |
|                                                                                                 |                                                                                   | OK/NA/PL                            | ITEM No. |
| <b>1</b>                                                                                        | <b>FIRE AND GAS DETECTOR:</b>                                                     |                                     |          |
| 1.1                                                                                             | Detector placed in the correct location as per the distribution drawings.         | ✓                                   |          |
| 1.2                                                                                             | Detector placed in the correct elevation as per the distribution drawings.        | ✓                                   |          |
| 1.3                                                                                             | Detector mounted in the correct orientation as per common engineering practice.   | ✓                                   |          |
| 1.4                                                                                             | Outlet tags are according to the drawing & correctly placed.                      | ✓                                   |          |
| 1.5                                                                                             | Detector is in good condition and has no physical/mechanical damage.              | ✓                                   |          |
| 1.6                                                                                             | Detector is properly fixed.                                                       | ✓                                   |          |
| 1.7                                                                                             | Detector type and model number are as mentioned in the drawings/purchase order.   | ✓                                   |          |
| 1.8                                                                                             | Check accessibility for maintenance.                                              | ✓                                   |          |
| 1.9                                                                                             | Check that there are no missing parts.                                            | ✓                                   |          |
| 1.10                                                                                            | Check/perform Pre-comm. check lists for all cables connected/wired to the outlet. | ✓                                   |          |
| <b>REMARKS AND OBSERVATIONS :</b><br><div style="height: 40px; border: 1px solid black;"></div> |                                                                                   |                                     |          |
| <b>OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.</b>                                    |                                                                                   |                                     |          |
| <b>COMPANY</b>                                                                                  | PETROJET                                                                          | ENPPI                               | PPC      |
| <b>NAME</b>                                                                                     |                                                                                   |                                     |          |
| <b>SIGNATURE</b>                                                                                |                                                                                   |                                     |          |
| <b>DATE</b>                                                                                     |                                                                                   |                                     |          |

| <b>PRE-COMMISSIONING CHECK LIST</b><br><b>DETECTOR</b><br><b>LP-13 A</b>                        |                                                                                     |                                                                                      |                                                                                       |
|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>PROJECT TITLE</b> : EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)            |                                                                                     |                                                                                      |                                                                                       |
| <b>PROJECT NUMBER</b> : 1251-100                                                                |                                                                                     | <b>DISCIPLINE</b> : Loss Prevention                                                  |                                                                                       |
| <b>SYSTEM NAME</b> : Tank-3 Fire Protection System                                              |                                                                                     | <b>SYSTEM ID</b> : 030-LP-007                                                        |                                                                                       |
| <b>SUB-SYSTEM NAME</b> : Tank-3 Fire Protection System                                          |                                                                                     | <b>SUB-SYSTEM ID</b> : 030-LP-007                                                    |                                                                                       |
| <b>ITEM TAG No.</b> : 030-LHD-005                                                               |                                                                                     | <b>AREA</b> : 30                                                                     |                                                                                       |
| <b>REF. DWGs/DOCs</b> : 030-LHD-005                                                             |                                                                                     |                                                                                      |                                                                                       |
| No.                                                                                             | DESCRIPTION                                                                         | RESULT<br>OK/NA/PL                                                                   | PL<br>ITEM No.                                                                        |
| <b>1</b>                                                                                        | <b>FIRE AND GAS DETECTOR:</b>                                                       |                                                                                      |                                                                                       |
| 1.1                                                                                             | Detector placed in the correct location as per the distribution drawings.           | ✓                                                                                    |                                                                                       |
| 1.2                                                                                             | Detector placed in the correct elevation as per the distribution drawings.          | ✓                                                                                    |                                                                                       |
| 1.3                                                                                             | Detector mounted in the correct orientation as per common engineering practice.     | ✓                                                                                    |                                                                                       |
| 1.4                                                                                             | Outlet tags are according to the drawing & correctly placed.                        | ✓                                                                                    |                                                                                       |
| 1.5                                                                                             | Detector is in good condition and has no physical/mechanical damage.                | ✓                                                                                    |                                                                                       |
| 1.6                                                                                             | Detector is properly fixed.                                                         | ✓                                                                                    |                                                                                       |
| 1.7                                                                                             | Detector type and model number are as mentioned in the drawings/purchase order.     | ✓                                                                                    |                                                                                       |
| 1.8                                                                                             | Check accessibility for maintenance.                                                | ✓                                                                                    |                                                                                       |
| 1.9                                                                                             | Check that there are no missing parts.                                              | ✓                                                                                    |                                                                                       |
| 1.10                                                                                            | Check/perform Pre-comm. check lists for all cables connected/wired to the outlet.   | ✓                                                                                    |                                                                                       |
| <b>REMARKS AND OBSERVATIONS :</b><br><div style="height: 40px; border: 1px solid black;"></div> |                                                                                     |                                                                                      |                                                                                       |
| <b>OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.</b>                                    |                                                                                     |                                                                                      |                                                                                       |
| <b>COMPANY</b>                                                                                  | PETROJET                                                                            | ENPPI                                                                                | PPC                                                                                   |
| <b>NAME</b>                                                                                     |                                                                                     |                                                                                      |                                                                                       |
| <b>SIGNATURE</b>                                                                                |  |  |  |
| <b>DATE</b>                                                                                     |                                                                                     |                                                                                      |                                                                                       |



| <b>PRE-COMMISSIONING CHECK LIST</b><br><b>DETECTOR</b><br><b>LP-13 A</b>                        |                                                                                   |                                     |          |
|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------|----------|
| <b>PROJECT TITLE</b> : EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)            |                                                                                   |                                     |          |
| <b>PROJECT NUMBER</b> : 1251-100                                                                |                                                                                   | <b>DISCIPLINE</b> : Loss Prevention |          |
| <b>SYSTEM NAME</b> : Tank-3 Fire Protection System                                              |                                                                                   | <b>SYSTEM ID</b> : 030-LP-007       |          |
| <b>SUB-SYSTEM NAME</b> : Tank-3 Fire Protection System                                          |                                                                                   | <b>SUB-SYSTEM ID</b> : 030-LP-007   |          |
| <b>ITEM TAG No.</b> : 030-LHD-006                                                               |                                                                                   | <b>AREA</b> : 30                    |          |
| <b>REF. DWGs/DOCs</b> : 030-LHD-006                                                             |                                                                                   |                                     |          |
| No.                                                                                             | DESCRIPTION                                                                       | RESULT                              | PL       |
|                                                                                                 |                                                                                   | OK/NA/PL                            | ITEM No. |
| <b>1</b>                                                                                        | <b>FIRE AND GAS DETECTOR:</b>                                                     |                                     |          |
| 1.1                                                                                             | Detector placed in the correct location as per the distribution drawings.         | ✓                                   |          |
| 1.2                                                                                             | Detector placed in the correct elevation as per the distribution drawings.        | ✓                                   |          |
| 1.3                                                                                             | Detector mounted in the correct orientation as per common engineering practice.   | ✓                                   |          |
| 1.4                                                                                             | Outlet tags are according to the drawing & correctly placed.                      | ✓                                   |          |
| 1.5                                                                                             | Detector is in good condition and has no physical/mechanical damage.              | ✓                                   |          |
| 1.6                                                                                             | Detector is properly fixed.                                                       | ✓                                   |          |
| 1.7                                                                                             | Detector type and model number are as mentioned in the drawings/purchase order.   | ✓                                   |          |
| 1.8                                                                                             | Check accessibility for maintenance.                                              | ✓                                   |          |
| 1.9                                                                                             | Check that there are no missing parts.                                            | ✓                                   |          |
| 1:10                                                                                            | Check/perform Pre-comm. check lists for all cables connected/wired to the outlet. | ✓                                   |          |
| <b>REMARKS AND OBSERVATIONS :</b><br><div style="height: 40px; border: 1px solid black;"></div> |                                                                                   |                                     |          |
| <b>OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.</b>                                    |                                                                                   |                                     |          |
| <b>COMPANY</b>                                                                                  | PETROJET                                                                          | ENPPI                               | PPC      |
| <b>NAME</b>                                                                                     |                                                                                   |                                     |          |
| <b>SIGNATURE</b>                                                                                |                                                                                   |                                     |          |
| <b>DATE</b>                                                                                     |                                                                                   |                                     |          |



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 12.11- Electrical Supplier Check Lists & Reports

|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

### 13- Electrical Commissioning

|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

### 13.01- Electrical -Commissioning Check Lists



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 13.02- Electrical Supplier Check Lists & Reports



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 14- Red Marked-up Drawings



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 14.01- P&ID



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

## 14.02- Instrumentation Drawings





Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



|                    |                               |
|--------------------|-------------------------------|
| System ID          | 030-LP-007                    |
| System Description | Tank-3 Fire Protection System |

### 14.03- Electrical Drawings